As confidentially submitted to the Securities and Exchange Commission on September 7, 2023 as Amendment No. 1 to the draft registration statement submitted on August 3, 2023. This Amendment No. 1 has not been publicly filed with the Securities and Exchange Commission and all information herein remains confidential.

Registration No. 333–

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Metagenomi Technologies, LLC
(Exact name of registrant as specified in its charter)

Delaware	2836	83-2735153
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

Metagenomi Technologies, LLC
1545 Park Avenue
Emeryville, California 94608
(510) 871-4880
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Brian C. Thomas, Ph.D.
Chief Executive Officer
Metagenomi Technologies, LLC
1545 Park Avenue
Emeryville, California 94608
(510) 871-4880
(Name, address, including zip code, and telephone number, including area code, of agent for service)

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450 Lexington Avenue
New York, New York 10017
(212) 450-4000

Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended, check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Securities Exchange Act of 1934.

Large Accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☐
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant files a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

Metagenomi Technologies, LLC, the registrant whose name appears on the cover of this registration statement, is a Delaware limited liability company. Prior to the effectiveness of this registration statement, Metagenomi Technologies, LLC will complete a series of transactions pursuant to which Metagenomi Technologies, LLC will merge with and into its wholly-owned subsidiary, Metagenomi, Inc., a Delaware corporation, with Metagenomi, Inc. continuing as the surviving corporation. We refer to this reorganization throughout the prospectus included in this registration statement as the “Reorganization.” Except as disclosed in the prospectus, the consolidated financial statements and summary consolidated financial data and other financial information included in this registration statement are those of Metagenomi Technologies, LLC and its subsidiaries and do not give effect to the Reorganization. Shares of the common stock of Metagenomi, Inc. are being offered by the prospectus included in this registration statement.

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The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the Securities and Exchange Commission declares our registration statement effective. This preliminary prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated , 2023

PRELIMINARY PROSPECTUS

Shares

Metagenomi

Common Stock

This is an initial public offering of shares of common stock of Metagenomi, Inc.

We are offering shares of our common stock. We expect that the initial public offering price will be between $ and $ per share.

Prior to this offering, there has been no public market for our common stock. We have applied to list our common stock on the Nasdaq Global Select Market under the symbol "MGX." We believe that upon the completion of this offering, we will meet the standards for listing on the Nasdaq Global Select Market, and the closing of this offering is contingent upon such listing.

We are an "emerging growth company" under the federal securities laws and, as such, we have elected to comply with certain reduced public company reporting requirements for this prospectus and for future filings.

	Per share	Total
Initial public offering price	$	$
Underwriting discounts and commissions(1)	$	$
Proceeds, before expenses, to Metagenomi, Inc.	$	$

(1) See "Underwriting" beginning on page 257 of this prospectus for additional information regarding underwriting compensation.

We have granted the underwriters an option for a period of 30 days to purchase an additional shares of our common stock from us at the initial public offering price, less underwriting discounts and commissions.

Investing in our common stock involves a high degree of risk. Before buying any shares, you should read carefully the discussion of the material risks of investing in our common stock under the heading "Risk Factors" starting on page 18 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities, or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares against payment in New York, New York on , 2023.

J.P. Morgan Jefferies TD Cowen Wells Fargo Securities BMO Capital Markets

Chardan

Prospectus dated , 2023.

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We have not, and the underwriters have not, authorized anyone to provide any information or to make any representation other than those contained in this prospectus, any amendment or supplement to this prospectus or any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the shares of common stock offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus, any amendment or supplement to this prospectus or any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside the United States: We have not, and the underwriters have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside the United States.

Market data and certain other statistical information used throughout this prospectus are based on independent industry publications, governmental publications, reports by market research firms, or other independent sources that we believe to be reliable sources. Industry publications and third-party research, surveys, and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. We are responsible for all of the disclosure contained in this prospectus, and we believe that these sources are reliable; however, we have not independently verified the information contained in such publications. While we are not aware of any misstatements regarding any third-party information presented in this prospectus, their estimates, in particular, as they relate to projections, involve numerous assumptions, are subject to risks and uncertainties, and are subject to change based on various factors, including those discussed under the section entitled “Risk Factors” and elsewhere in this prospectus. Some data are also based on our good faith estimates.

We intend to apply for various trademarks that we use in connection with the operation of our business. This prospectus may also contain trademarks, service marks and trade names of third parties, which are the property of their respective owners. Our use or display of third parties’ trademarks, service marks, trade names or products in this prospectus is not intended to, and does not imply a relationship with, or endorsement or sponsorship by us. Solely for convenience, the trademarks, service marks and trade names referred to in this prospectus may appear without the TM or SM symbols, but the omission of such references is not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable owner of these trademarks, service marks and trade names.

PROSPECTUS SUMMARY

This summary highlights information contained in greater detail elsewhere in this prospectus and does not contain all of the information that you should consider in making your investment decision. Before investing in our common stock, you should carefully read this entire prospectus, including our consolidated financial statements and the related notes thereto included elsewhere in this prospectus. You should also consider, among other things, the information set forth under the sections entitled "Risk Factors," "Special Note Regarding Forward-Looking Statements," and "Management's Discussion and Analysis of Financial Condition and Results of Operations," in each case included elsewhere in this prospectus.

Prior to the completion of this offering, we will complete a series of transactions pursuant to which Metagenomi Technologies, LLC will merge with and into its wholly-owned subsidiary, Metagenomi, Inc., a Delaware corporation, with Metagenomi, Inc. continuing as the surviving corporation. See "Reorganization." Except where the context otherwise requires or where otherwise indicated, the terms "Metagenomi," "we," "us," "our," "our company," "the company," and "our business" refer, prior to the Reorganization discussed below, to Metagenomi Technologies, LLC and, after the Reorganization, to Metagenomi, Inc.

Overview

We are a precision genetic medicines company committed to developing curative therapeutics for patients using our proprietary, comprehensive metagenomics-derived genome editing toolbox. Genetic diseases are caused by a diverse set of mutations that have been largely inaccessible by genome engineering approaches to date. Genetic mutations are seen in a variety of forms, including deletions, insertions, single-base-pair changes and sequence repeats, and are found throughout the genome and across a variety of different cell types, tissues, and organ systems. Additionally, many diseases lack a genetic origin but have the potential to be effectively and permanently addressed through genome editing. We are harnessing the power of metagenomics, the study of genetic material recovered from the natural environment, to unlock four billion years of microbial evolution to discover and develop a suite of novel editing tools capable of correcting any type of genetic mutation found anywhere in the genome. Our comprehensive genome editing toolbox includes programmable nucleases, base editors, and RNA and DNA-mediated integration systems (including prime editing systems and clustered regularly interspaced short palindromic repeat ("CRISPR")-associated transposases ("CASTs")). We believe our diverse and modular toolbox positions us to access the entire genome and select the optimal tool to unlock the full potential of genome editing for patients.

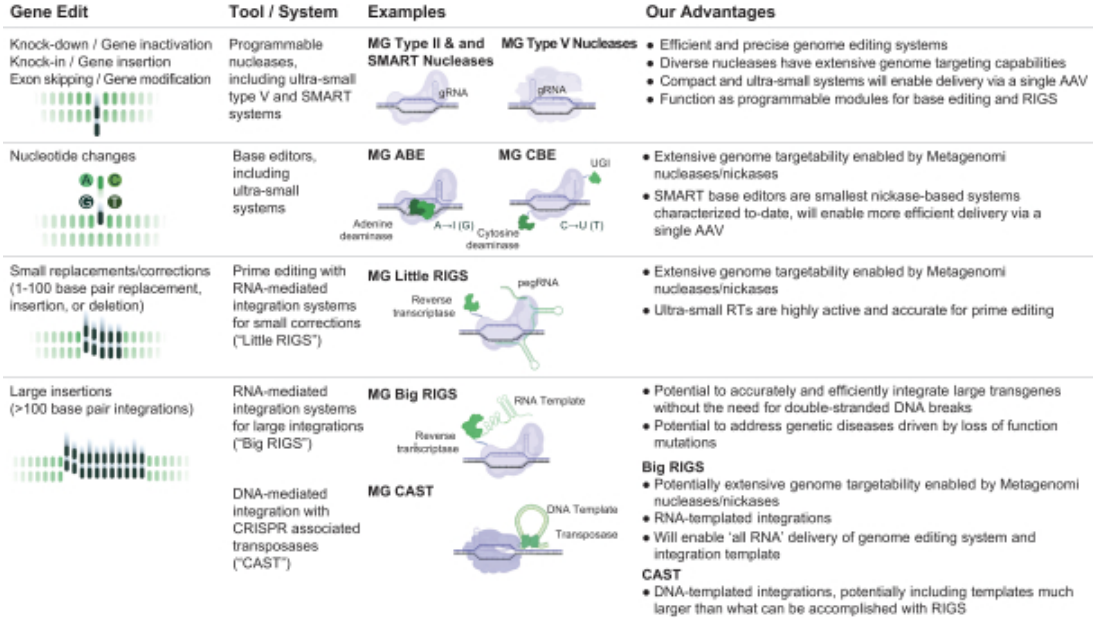
The company was founded by pioneers in the field of metagenomics, a powerful science that allows us to tap into the diversity of microbial life on this planet. The metagenomics process starts by collecting samples from microbe-rich ecosystems ranging from simple home gardens to extreme locations such as hydrothermal vents below the ocean. We then extract the DNA from these environmental samples and deeply sequence them to fully reconstruct the genomes of the resident microbes. Each sample may include thousands of distinct genomes from previously unknown organisms revealing novel cellular machinery that we utilize as building blocks for our editing systems. Using high-throughput screening, artificial intelligence ("AI"), and proprietary algorithms, we rapidly mine through billions of novel proteins from our genome-resolved metagenomics database to create genome editing tools. To date, we have analyzed over 380 trillion of base pairs, predicted over 6 billion proteins, including over 150 million CRISPR-associated ("Cas") proteins and over 1.4 million CRISPRs, which we estimate has resulted in the identification of over 20,000 novel genome editing systems. We have assembled extensive libraries of millions of nucleases, deaminases, reverse transcriptases ("RTs") and over one thousand CASTs. Our platform enables us to rapidly and effectively find, screen, and select tools with

the highest targetability, specificity, and efficiency in order to develop them into genetic medicines. The iterative nature of our process, underpinned by AI, allows us to continuously push the boundaries of innovation.

Our proprietary toolbox of editing systems

We have developed an expansive and modular toolbox of next-generation genome editing systems that will allow us to interact with the human genome in a site-specific manner, where each tool can be matched to specific disease targets. Figure 1 summarizes our diverse and versatile toolbox of different editing capabilities with the potential to address the full spectrum of genetic diseases.

Figure 1. Our Toolbox.



Our programmable nucleases are the backbone of our broad set of genome editing tools. These novel nucleases including type II and type V Cas nucleases, of which some are ultra-small systems that we call SMall Arginine-Rich sysTems ("SMART") nucleases, have unique targeting abilities and can be programmed by guide RNAs ("gRNA") to target and cut at specific locations in any genome sequence. Targeted genomic breaks trigger DNA repair pathways that can be used for genome editing, for example, to integrate a gene at a target site (knock-in) or for gene inactivation (knock-down).

Our toolbox contains thousands of CRISPR nucleases with diverse abilities to target different parts of the genome, allowing us to select the ideal nuclease for targeting any given gene in a site-specific manner and potentially overcome a major limitation of first-generation CRISPR/Cas9 systems.

We also modify our nucleases to either nick the genome (i.e., a nickase that cuts one strand of the DNA) or to simply bind to target sites (i.e., a nuclease dead variant). These capabilities (searching, cutting, nicking, and binding) can be leveraged as a chassis by adding on additional effector enzymes to create base editors for single nucleotide changes, RNA-mediated integration systems for large integrations ("Little RIGS") for prime editing with small RNA-templated genomic replacements/corrections, and RNA-mediated integration systems

for large integrations (“Big RIGS”) for large RNA-templated gene integrations. Using modular engineering, we match nickases with deaminases and RTs for base editing and RNA-mediated integration systems (“RIGS”), respectively. Furthermore, nucleases can be engineered by swapping the search modules of the enzyme to expand the targetability of the chassis, which is critical for site-specific genomic modifications. Given the measured targeting density of our toolbox, we believe that essentially any codon in the human genome could be addressed with our gene editing systems.

Our highly active nucleases have gone through extensive preclinical evaluation for both *in vivo* and *ex vivo* applications, with demonstration of broad potency of these systems across human primary cells, mouse, and nonhuman primate (“NHP”) models. Our base editors, RIGS, and CAST systems have demonstrated activity across various cell-based models. In addition to evaluating system activity, we have undertaken detailed characterization of guide-specific on- and off-target effects. We routinely identify guides that have no or minimal verifiable off-target editing, thus overcoming another limitation of first-generation CRISPR/Cas9 systems.

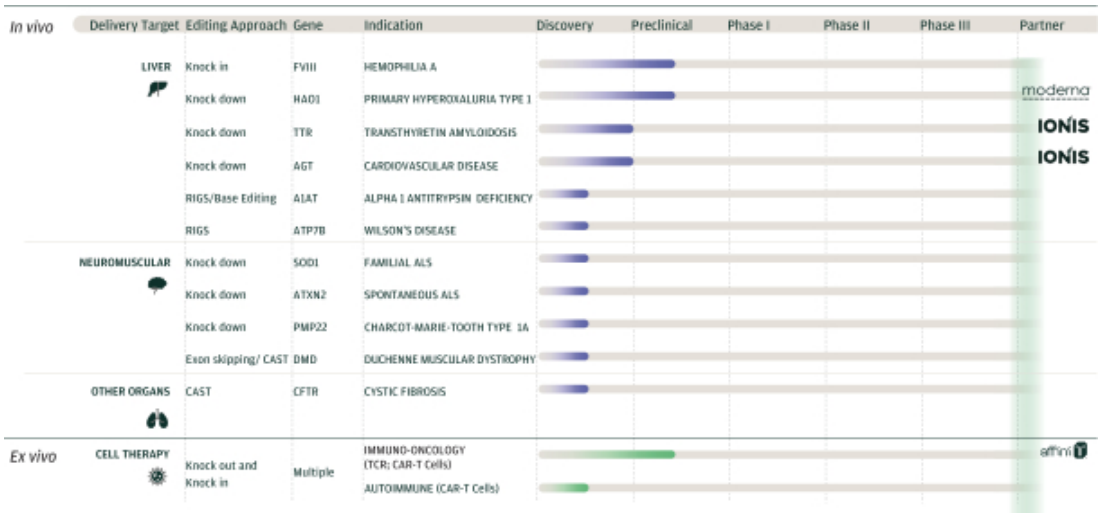
In addition to overcoming the activity, targetability, and specificity limitations of first-generation systems, our nuclease toolbox was designed to have broad compatibility with viral and nonviral delivery technologies. This compatibility is accomplished by having a variety of nuclease and gRNA structures, which range in terms of their size and biochemistry. For example, small guides for some type V Cas systems streamline manufacturing for delivery by lipid nanoparticle (“LNP”) approaches, and SMART nickases can be used to construct base editors that are small enough to fit within the packaging limitations of adeno-associated viruses (“AAV”). SpCas9, which is currently used in most base editing applications, is roughly three times the size of some of our smallest SMART nickases and cannot be efficiently packaged into a single AAV. Combined, we believe these features will facilitate delivery of our genome editing tools to previously inaccessible tissue types and organ systems.

While nucleases, base editors, and prime editors can precisely address a wide variety of genomic modifications required to treat disease, the fact that many diseases are caused by a multitude of mutations across a gene means that a diverse set of editing tools are required to fully address these patient populations. The integration of a complete and functional gene through targeted genome editing may provide a way in which every patient with a given disease could potentially be treated by a single genetic medicine. Big RIGS and CASTs are novel genome editing systems that are under development to achieve what has been a major challenge for the genome editing field—large, targeted genomic integrations. Initial preclinical readouts conducted in mammalian cells indicate that these systems could potentially have a major impact on how diseases caused by loss-of-function mutations, the most common cause of genetic diseases, can be addressed through genome editing.

Therapeutic translation roadmap and initial programs

We are taking a stepwise approach deploying our genome editing toolbox to develop potentially curative therapies for patients. Our lead programs are selected to both address important diseases and to establish new standards in targetability, precision, efficiency, and scope of editing capabilities. Figure 2 summarizes the portfolio of programs that we and our partners are advancing, as we aim to match the optimal genome editing tools for each indication. Each of these indications were chosen based on our conviction in the underlying biology, existence of validating preclinical and clinical data, availability of pharmacodynamic and translational tools to assess early proof-of-concept, relevant value supporting outcome measures, and ongoing clinical unmet need. While we do not currently have any approved products and all of our product candidates are preclinical, our lead programs capture an ever-growing set of translational learnings and insights that will inform and accelerate future programs.

Figure 2: Therapeutic Translation.



Hemophilia A—novel, durable, knock-in approach for expression of Factor VIII

Hemophilia A is the most common X-linked inherited bleeding disorder and is caused by mutations in the Factor VIII ("FVIII") gene leading to loss of functional FVIII protein that impacts the body's ability to form normal clots in response to injury. FVIII is normally produced in the liver within sinusoidal endothelial cells and is then secreted into the bloodstream where it acts as a cofactor for the catalytic activation of Factor X in the clotting pathway. The lack of functional FVIII disrupts the normal clotting cascade and predisposes patients to increased risk of bleeding, either spontaneously or in response to injury or surgery. Repeated bleeding episodes in joints or soft tissues can lead to progressive joint damage, inflammation, pain, and mobility impairment. Intracranial bleeding is of greatest concern as this can be rapidly fatal or lead to major morbidity.

Rather than provide the FVIII gene in an episomal location, which risks dilution from cell division or cell death as well as episomal transcriptional silencing, our approach is to insert a FVIII DNA cassette into a "safe harbor location," within an intron of the albumin gene that is not expected to have deleterious effects. FVIII expression is then driven by the strong native albumin promoter. This approach has previously been demonstrated in preclinical studies to lead to therapeutically relevant expression of a different clotting factor (Factor IX) with negligible impact to systemic circulating albumin levels. Our FVIII knock-in approach is designed to provide stable expression and clinically relevant circulating levels of FVIII, even at low integration rates because of the strength of the albumin promoter. We have demonstrated the feasibility of the FVIII gene knock-in approach in mice with several mouse specific guides and different FVIII DNA donor cassettes, with integration of the FVIII gene leading to FVIII mRNA expression and therapeutically relevant levels of FVIII protein in the blood. We are finalizing donor DNA cassette optimization and performing our next set of NHP studies to demonstrate and quantify FVIII integration and FVIII protein expression. In parallel, we are manufacturing mRNA, guide RNA, AAV and LNP to support future investigational new drug ("IND")-enabling studies. We expect to select a final development candidate in the first half of 2024 and initiate IND-enabling Good Laboratory Practices studies thereafter.

Primary Hyperoxaluria, Type 1 ("PH1")—a durable knockdown of HAO1 for substrate reduction therapy

PH1 is a rare autosomal recessive metabolic disease arising from loss of function mutations in the alanine-glyoxylate aminotransferase ("AGXT") gene that encodes alanine glyoxylate aminotransferase. This enzyme is found in peroxisomes of the liver where it catalyzes the conversion of glyoxylate to glycine and pyruvate. Lack of functional AGXT leads to an accumulation of glyoxylate substrate, which is then converted to oxalate and excreted in the kidney. The excess urinary oxalate forms an insoluble complex with urinary calcium that leads to the production of calcium oxalate crystal precipitates. This pathologic process results in the formation of repeated calcium oxalate urolithiasis and nephrolithiasis, which in turn leads to obstructive uropathy, inflammation, fibrosis, tubular toxicity, and progressive loss of kidney function. PH1 is a serious disease that causes kidney failure. More than 70% of individuals with PH1 mutations will develop end-stage renal disease, with a median age in young adulthood.

The goal of our genome editing approach is to durably knock down HAO1 resulting in stable and permanent reduction of oxalate levels to effect a lifelong benefit. We have performed nuclease and guide screening to select an optimal nuclease and gRNA combination. Along with our partner ModernaTX, Inc. ("Moderna"), we have achieved preclinical proof-of-concept in an AGXT knock-out mouse which is an accepted disease model of PH1. We are in the final stages of confirming the candidate to take into NHP studies and are scheduled to begin NHP studies in 2023 to support final development candidate selection thereafter.

Transthyretin Amyloidosis—a single treatment to knockdown TTR gene expression

Transthyretin amyloidosis is a disease of misfolded and aggregated transthyretin ("TTR") protein that can deposit in tissues causing organ dysfunction, primarily in the heart and/or peripheral nerves. The TTR protein is normally produced in the liver and circulates in a homotetramer (four copies of the same TTR protein bound together) where it serves as a carrier protein for vitamin A and thyroxine. Certain mutations have been identified that can cause TTR homotetramers to fall apart, misfold, and aggregate into insoluble fibrils that deposit in cardiac tissue and peripheral nerves. However, more commonly, the normal aging process is associated with an increased propensity for TTR misfolding and aggregation in the heart without any known genetic sequence variation. These distinctions lead to TTR amyloidosis being characterized as either hereditary transthyretin amyloidosis ("ATTRv") caused by mutations in TTR, or wild-type ATTR amyloidosis ("ATTRwt"). It is estimated that globally there are approximately 50,000 patients with ATTRv and between 300,000 and 500,000 patients with ATTRwt. Among the larger ATTRwt patient population, the most common presentation is a rapidly progressive, restrictive, and hypertrophic cardiomyopathy due to progressive deposition of insoluble TTR fibrils, which result in thickening of the myocardium and stiffening of the ventricles. These pathologic processes lead to impaired diastolic function and progressive cardiomyopathy that typically leads to progressive heart failure and often death within three to five years from disease onset. Although cardiac manifestations are more common and severe, patients with neurologic manifestations also experience significant morbidity, loss of functionality, and impaired quality of life.

Using our novel nucleases, we aim to provide efficient TTR knockdown and halt further deposition of amyloid fibrils. Previous experience suggests a clinical correlation between the degree of TTR knockdown and potential for benefit in familial forms of the disease, which are expected to translate similarly to wild type forms. The high degree of *in vivo* editing efficiency and specificity of our nuclease platform suggest the potential for a single treatment to knockdown TTR gene expression and remove the requirement for life-long therapy. Along with our partner Ionis Pharmaceuticals, Inc. ("Ionis"), we are currently in advanced stages of nuclease and guide selection and expect to move into NHP studies in 2024.

Further areas of therapeutic activity and interest

In parallel with our translation efforts in our lead programs using our novel programmable nucleases to knock-in or knock-down gene expression in liver-associated targets, we are developing more complex editing systems for liver associated targets as well as moving beyond the liver. Given that our genome editing toolbox contains small editing systems designed to be amenable to viral vector delivery, and given the progress established in targeting the central nervous system and muscle with established AAV capsids, our first extrahepatic indications will be neurodegenerative and neuromuscular diseases.

Building on our experience delivering our nucleases to the liver via LNP systems, we are extending that experience delivering novel RIGS to the liver to potentially correct ATP7B mutations in Wilson's disease and PiZ mutations in alpha-1-antitrypsin deficiency ("A1AT deficiency"). We are also exploring addressing A1AT deficiency via a base editor approach given the predominant mutation involves a single base pair. Both of these liver diseases have well-defined biology, readily available translational biomarkers for early proof-of-concept, established development pathways based on prior drug approvals, and important unmet medical needs.

Building on our experience with our novel type II and type V programmable nucleases, we are extending that experience by working to deliver these nucleases via AAV to the central nervous system to potentially knock-down genetic targets important for both spontaneous and familial amyotrophic lateral sclerosis (SOD1, ATXN2) and Charcot-Marie-Tooth Type 1a (PMP22). In addition, we are working to address a series of mutations common in Duchenne Muscular Dystrophy with our programmable nucleases through exon skipping approaches. In diseases outside of the liver, we intend to initially leverage known biology and clinical validation achieved with RNA-targeted approaches like antisense and small interfering RNA ("siRNA") to advance more potent and definitive one-time genome editing treatments.

Building on our experience with both knock-in gene expression and smaller gene corrections with RIGS, we are progressing our larger RNA- and DNA-mediated integration systems to potentially provide a single curative approach to cystic fibrosis. As opposed to currently-available therapies limited to subsets of patients with individual mutations, we intend to deliver a full copy of a functional cystic fibrosis transmembrane conductance regulator ("CFTR") gene. This approach can similarly be pursued across many other diseases characterized by loss of function mutations.

Our Team

We have assembled a world-class team that is driven by a passion to create potentially curative genetic medicines through the discovery of novel genome editing technologies by harnessing the power of metagenomics. Key members of our executive and leadership team include:

- **Brian C. Thomas, Ph.D., Chief Executive Officer and Founder,** prior to co-founding the company, Dr. Thomas spent more than 20 years in academic research at UC Berkeley helping to pioneer the field of metagenomics. Dr. Thomas has been cited over 16,000 times and listed as an inventor in 28 patent families.
- **Jian Irish, Ph.D., President and Chief Operating Officer**, has held biopharma executive leadership roles for nearly 20 years at Kite Pharma / Gilead, Sanofi, and Amgen in drug development and global operations, and has helped launch several breakthrough medicines.
- **Sarah Noonberg, M.D., Ph.D., Chief Medical Officer**, has spent more than 20 years in translational and clinical development leadership roles with a track record of advancing therapeutic programs from discovery to commercialization, including at Medivation and BioMarin.

- **Alan Brooks, Ph.D., SVP of Preclinical**, has worked on genetic medicines providing scientific leadership in translational research for more than 25 years, including at Casebia Therapeutics and Bayer Healthcare. Dr. Brooks' research has led to 20 publications and numerous patent filings.
- **Simon Harnest, Chief Investment Officer and SVP of Strategy**, has held leadership roles in corporate finance and strategy in the life sciences sector, having raised over $1 billion in public and private capital, including leading Cellectis' U.S. IPO and subsequent spin-out and IPO of Calyxt.
- **Christopher T. Brown, Ph.D., VP of Discovery,** is a former scientist at the Jill F. Banfield laboratory at UC Berkeley and an expert in using metagenomics to discover novel microbial systems for use in genome editing. Dr. Brown's research has resulted in over 35 publications and over 20 patent family filings.
- **Simren Delaney, Ph.D., LLM, VP of Legal,** is specialized in Intellectual Property and Patent law, having previously worked at Wilson Sonsini Goodrich & Rosati, and plays an instrumental role in driving the development of the company's growing IP portfolio.
- **Michael Conway, MBA, CPA, VP of Finance**, has spent nearly 20 years in finance leadership positions at life science and technology companies, including Adamas Pharmaceuticals, InterMune, and Intel.

Our company is supported by our board of directors, Scientific Advisory Board, and a leading syndicate of investors, with more than 30 funds supporting our Series B and Series B-1 preferred unit financings.

Our Strategy

Our goal is to harness the power of our proprietary metagenomics platform to create curative genetic medicines for patients. Key components of our strategy to achieve this goal include:

- Leverage our leadership position in metagenomics to continually advance and expand innovative genome editing tools.
- Develop and deliver products that make precise modifications to the human genome to cure disease.
- Build a fully integrated genome editing company.
- Expand therapeutic impact to patients through continued investment in business development and enabling partnerships, including with our existing partners Moderna, Ionis, and Affini-T Therapeutics, Inc.
- Maintain our entrepreneurial outlook, scientifically rigorous approach, and culture of tireless commitment to patients.

Risks Associated with Our Business

- We have incurred significant losses since inception. We expect to incur losses for the foreseeable future and may never achieve or maintain profitability.
- We have never generated revenue from product sales and may never become profitable.
- We will need substantial additional funding in addition to the net proceeds we receive from this offering. If we are unable to raise additional capital when needed on acceptable terms, or at all, we may be forced to delay, reduce, or terminate certain research and product development programs, future commercialization efforts or other operations.

- We are very early in our development efforts, and we have not yet initiated IND-enabling studies or clinical development of any product candidate. As a result, we expect it will be many years before we commercialize any product candidate, if ever. If we are unable to advance our current or future product candidates into and through clinical trials, obtain regulatory approval and ultimately commercialize our product candidates or experience significant delays in doing so, our business will be materially harmed.
- We are subject to additional development challenges and risks due to the novel nature of our genome editing technology.
- Clinical drug development involves a lengthy and expensive process, with an uncertain outcome. Because genome editing is novel and the regulatory landscape that will govern our potential product candidates is uncertain and may change, we cannot predict the time and cost of obtaining regulatory approval, if we receive it at all, for our potential product candidates.
- The genome editing field is relatively new and is evolving rapidly. We are focusing our research and development efforts on genome editing using programmable nucleases, base editing, and RNA and DNA-mediated integration systems (including prime editors and Cas transposes), but other genome editing technologies may be discovered that provide significant advantages over such technologies, which could materially harm our business.
- If any of the product candidates we may develop or the delivery modes we rely on cause undesirable side effects, it could delay or prevent their regulatory approval, limit the commercial potential or result in significant negative consequences following any potential regulatory approval.
- Positive results from early preclinical studies of any product candidates we may develop are not necessarily predictive of the results of later preclinical studies and any future clinical trials of such product candidates. If we cannot replicate the positive results from our earlier preclinical studies of any product candidates we may develop in our later preclinical studies and future clinical trials, we may be unable to successfully develop, obtain regulatory approval for and commercialize such product candidates.
- We may find it difficult to enroll patients in our future clinical trials given the limited number of patients who have the diseases any product candidates we identify or develop are intended to target. If we experience delays or difficulties in the enrollment of patients in clinical trials, our clinical development activities and our receipt of necessary regulatory approvals could be delayed or prevented.
- Genetic therapies are novel, and any product candidates we develop may be complex and difficult to manufacture. We could experience delays in satisfying regulatory authorities or production problems that result in delays in our development programs, limit the supply of the product candidates we may develop or otherwise harm our business.
- We face significant competition in an environment of rapid technological change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer or more advanced or effective than ours, which may harm our financial condition and our ability to successfully market or commercialize any product candidates we may develop.
- While we intend to seek designations for our potential product candidates with the U.S. Food and Drug Administration (the “FDA”) and comparable foreign regulatory authorities that are intended to confer benefits such as a faster development process or an accelerated regulatory pathway, there can be no assurance that we will successfully obtain such designations. In addition, even if one or more of our potential product candidates are granted such designations, we may not be able to realize the intended benefits of such designations.

- Because we are developing product candidates in the field of genetic medicines in which there is little clinical experience, there is increased risk that the FDA, the European Medicines Agency or other regulatory authorities may not consider the endpoints of our clinical trials to provide clinically meaningful results and that these results may be difficult to analyze.
- If preclinical studies or clinical trials of any product candidates we may identify and develop fail to demonstrate safety and efficacy to the satisfaction of regulatory authorities or do not otherwise produce positive results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of such product candidates.
- Even if we complete the necessary clinical trials, we cannot predict when, or if, we will obtain regulatory approval to commercialize a product candidate we may develop in the United States or any other jurisdiction, and any such approval may be for a more narrow indication than we seek.
- If conflicts arise between us and our collaborators or strategic partners, these parties may act in a manner adverse to us and could limit our ability to implement our strategies.
- We have entered into collaborations, and may enter into additional collaborations, with third parties for the research, development, manufacture and commercialization of programs or product candidates. If these collaborations are not successful, our business could be adversely affected.
- Our collaborators and strategic partners may control aspects of our clinical trials, which could result in delays and other obstacles in the commercialization of our proposed products and materially harm our results of operations.
- Our future success depends on our ability to retain our Chief Executive Officer and other key executives and to attract, retain, and motivate qualified personnel.
- Our commercial success depends on our ability to obtain, maintain, enforce, and otherwise protect our intellectual property and proprietary technology, and if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors or other third parties could develop and commercialize products and product candidates similar to ours and our ability to successfully develop and commercialize our genome editing systems may be adversely affected.
- Intellectual property rights do not necessarily address all potential threats to our business.

Corporate Information

We commenced our current operations and converted to a Delaware limited liability company in September 2018. We were originally founded as Metagenomi.co, a Delaware corporation, in September 2016. Prior to the completion of this offering, we intend to engage in a series of transactions, which we refer to collectively as the Reorganization. As a result of the Reorganization, Metagenomi Technologies, LLC will merge with and into its wholly-owned subsidiary, Metagenomi, Inc., a Delaware corporation, with Metagenomi, Inc. continuing as the surviving corporation. In connection with the Reorganization, (i) all of the outstanding common unitholders of Metagenomi Technologies, LLC will receive shares of common stock of Metagenomi, Inc., (ii) all of the outstanding preferred unitholders of Metagenomi Technologies, LLC will receive shares of preferred stock of Metagenomi, Inc. and (iii) all of the outstanding holders of profits interest units in Metagenomi Technologies, LLC will receive shares of common stock and restricted common stock in Metagenomi, Inc. as determined by the applicable provisions of the Metagenomi Technologies, LLC operating agreement in effect immediately prior to

the Reorganization. Immediately prior to the completion of this offering, all outstanding shares of preferred stock of Metagenomi, Inc. will be converted into shares of common stock.

Metagenomi, Inc. will become the registrant for purposes of this offering, and our consolidated financial statements will be reported from Metagenomi, Inc. See “Reorganization” and “Description of Capital Stock” for additional information, including a description of the terms of our capital stock following the Reorganization and the terms of our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering.

Our principal executive offices are located at 1545 Park Avenue Emeryville, California 94608, and our telephone number is (510) 871-4880.

Our website address is https://www.metagenomi.co. The information contained in or accessible from our website is not incorporated into this prospectus, and you should not consider it part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Implications of Being an Emerging Growth Company

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act of 2012, as amended (the “JOBS Act”). As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- being permitted to present only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced “Management’s discussion and analysis of financial condition and results of operations” disclosure in this prospectus;
- reduced disclosure about our executive compensation arrangements;
- not being required to hold advisory votes on executive compensation or to obtain stockholder approval of any golden parachute arrangements not previously approved;
- an exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act of 2002; and
- an exemption from compliance with the requirements of the Public Company Accounting Oversight Board regarding the communication of critical audit matters in the auditor’s report on the financial statements.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of $1.235 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering; (iii) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission (the “SEC”). We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. Additionally, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth

company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption and, therefore, while we are an emerging growth company we will not be subject to new or revised accounting standards at the same time that they become applicable to other public companies that are not emerging growth companies. As a result of this election, our financial statements may not be comparable to those of other public companies that comply with new or revised accounting pronouncements as of public company effective dates. We may choose to early adopt any new or revised accounting standards whenever such early adoption is permitted for private companies.

THE OFFERING

Shares of common stock offered by us	shares.
Shares of our common stock to be outstanding after this offering	shares (or shares if the underwriters exercise their option to purchase additional shares in full).
Underwriters' option to purchase additional shares	We have granted the underwriters a 30-day option to purchase up to additional shares of our common stock at the initial public offering price, less underwriting discounts and commissions on the same terms as set forth in this prospectus.
Use of proceeds	We estimate that the net proceeds to us from the sale of shares of our common stock in this offering will be approximately $ million, or $ million if the underwriters exercise their option to purchase additional shares in full, assuming an initial public offering price of $ per share, the estimated midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds of this offering, together with our existing cash and cash equivalents and available-for-sale marketable securities, to and for general corporate purposes. See "Use of Proceeds."
Proposed Nasdaq Global Select Market symbol	We have applied to list our common stock on the Nasdaq Global Select Market under the symbol "MGX." The closing of this offering is contingent upon such listing.
Risk factors	Investment in our common stock involves substantial risks. You should read this prospectus carefully, including the section entitled "Risk Factors" and the consolidated financial statements and the related notes to those statements included in this prospectus, before investing in our common stock.

The number of shares of our common stock outstanding after this offering assumes the Reorganization takes place immediately prior to the completion of this offering and is based on shares of our common stock (including shares of unvested restricted common stock) issued in exchange for common units and profits interests outstanding as of June 30, 2023, and after giving effect to the conversion of shares of our redeemable convertible preferred stock, issued in connection with the Reorganization in exchange for redeemable convertible preferred units outstanding as of June 30, 2023, into an equivalent number of shares of our common stock immediately prior to the completion of this offering:

The number of shares of common stock to be outstanding after this offering excludes:

- shares of common stock reserved for future issuance under our 2023 Stock Option and Incentive Plan, which will become effective on the date immediately prior to execution of the underwriting agreement related to this offering; and

- shares of common stock reserved for future issuance under our 2023 Employee Stock Purchase Plan, which will become effective immediately prior to execution of the underwriting agreement related to this offering.

Except as otherwise noted, all information in this prospectus:

- assumes no vesting of the restricted common stock described above;
- assumes no exercise of the underwriters' option to purchase up to additional shares of common stock in this offering; and
- assumes the filing of our amended and restated certificate of incorporation and the effectiveness of our amended and restated bylaws, which will occur upon the closing of this offering.

SUMMARY CONSOLIDATED FINANCIAL DATA

The following tables present the summary consolidated financial data for Metagenomi Technologies, LLC and its consolidated subsidiary. You should read the following summary consolidated financial data together with our consolidated financial statements and the related notes appearing elsewhere in this prospectus and the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus. We have derived the consolidated statements of operations for the years ended December 31, 2022 and 2021 from our audited consolidated financial statements appearing elsewhere in this prospectus. The consolidated statements of operations for the six months ended June 30, 2023 and 2022 and the consolidated balance sheet data as of June 30, 2023 have been derived from our unaudited condensed consolidated financial statements appearing elsewhere in this prospectus, which have been prepared on the same basis as the audited consolidated financial statements. In the opinion of management, the unaudited data reflect all adjustments, consisting only of normal recurring adjustments, necessary for a fair statement of the financial information in those statements. Our historical results are not necessarily indicative of the results that may be expected in any future period. The summary consolidated financial data included in this section are not intended to replace the consolidated financial statements and the related notes included elsewhere in this prospectus.

	Year Ended December 31,		Six Months Ended June 30,	
	2021	2022	2022	2023
			(in thousands, except share and per share data)	
Consolidated Statements of Operations Data:				
Collaboration revenue	$ 243	$ 17,200	$ 6,692	$ 19,994
Operating expenses:				
Research and development	14,478	43,139	16,855	42,811
General and administrative	9,712	18,701	7,834	13,084
Total operating expenses	24,190	61,840	24,689	55,895
Loss from operations	(23,947)	(44,640)	(17,997)	(35,901)
Other income (expense):				
Interest expense	(302)	(98)	(98)	—
Interest income	43	3,419	411	7,970
Change in fair value of long-term investments	2,760	94	94	2,870
Other income, net	4	201	97	15
Total other income	2,505	3,616	504	10,855
Net loss before provision for income taxes	(21,442)	(41,024)	(17,493)	(25,046)
Provision for income taxes	—	(2,569)	(1,092)	(4,095)
Net loss	$ (21,442)	$ (43,593)	$ (18,585)	$ (29,141)
Net loss per unit attributable to common unitholders, basic and diluted(1)	$ (3.77)	$ (7.34)	$ (3.13)	$ (4.90)
Weighted-average common units outstanding, basic and diluted(1)	5,691,431	5,938,654	5,929,662	5,947,500
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(2)		$		$
Pro forma weighted-average common stock outstanding, basic and diluted (unaudited)(2)				

(1) See Note 16 to our audited consolidated financial statements and Note 14 to our unaudited condensed consolidated financial statements included elsewhere in this prospectus for details on the calculation of basic and diluted net loss per unit attributable to common unitholders.
(2) See "Unaudited Pro Forma Net Loss Per Share Attributable to Common Stockholders" subsection below for details on our unaudited pro forma calculations.

Unaudited Pro Forma Net Loss Per Share Attributable to Common Stockholders

The unaudited pro forma basic and diluted net loss per share attributable to common stockholders for the year ended December 31, 2022 and for the six months ended June 30, 2023 has been computed to give effect to (i) the Reorganization, (ii) the conversion of and shares of our redeemable convertible preferred stock outstanding as of December 31, 2022 and June 30, 2023, respectively, into an equivalent number of shares of our common stock as if such conversion occurred on January 1, 2022 and (iii) the filing and effectiveness of our amended and restated certificate of incorporation that will be in effect immediately prior to the completion of this offering. The unaudited pro forma net loss attributable to common stockholders gives effect to the adjustments described below. The unaudited pro forma net loss per share attributable to common stockholders,

basic and diluted, does not include the effect of the shares of our common stock expected to be sold in this offering.

The following table sets forth the computation of the unaudited pro forma basic and diluted net loss per share assuming the offering is completed on January 1, 2022:

	Year Ended December 31, 2022 (unaudited)	Six Months Ended June 30, 2023 (unaudited)
	(in thousands, except share and per share data)	
Numerator:		
Net loss	$ (43,593)	$ (29,141)
Denominator:		
Weighted-average common units outstanding, basic and diluted	5,938,654	5,947,500
Pro forma adjustment to reflect the issuance of common stock in exchange for common units in connection with the Reorganization(1)		
Pro forma adjustment to reflect the issuance of common stock in exchange for vested profits interests in connection with the Reorganization(1)		
Pro forma adjustment to reflect the conversion of redeemable convertible preferred stock issued in connection with the conversion of the redeemable convertible preferred units from the Reorganization into common stock(2)		
Pro forma weighted-average common shares outstanding, basic and diluted (unaudited)		
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)	$	$

(1) Reflects the exchange of (i) 5,947,500 common units for shares of our common stock and (ii) vested profits interests for shares of our common stock in connection with the Reorganization, as if such exchange had occurred on January 1, 2022.

(2) Reflects the conversion of shares of our redeemable convertible preferred stock, issued in connection with the Reorganization in exchange for redeemable convertible preferred units, into an equivalent number of shares of our common stock, as if such conversion had occurred on January 1, 2022.

	As of June 30, 2023		
	Actual	Pro Forma(1)	Pro Forma As Adjusted(2)
		(in thousands)	
Condensed Consolidated Balance Sheet Data:			
Cash and cash equivalents	$ 51,648	$	$
Available-for-sale marketable securities	266,792		
Working capital(3)	259,907		
Total assets	408,659		
Total liabilities	160,440		
Redeemable convertible preferred units	350,758		
Redeemable convertible preferred stock	—		
Accumulated deficit	(105,830)		
Total members'/shareholders' equity (deficit)	(102,539)		

(1) The consolidated pro forma balance sheet data gives effect to (i) the Reorganization, (ii) the conversion of shares of our redeemable convertible preferred stock, issued in connection with the Reorganization in exchange for redeemable convertible preferred units outstanding as of June 30, 2023, into an equivalent number of shares of our common stock immediately prior to the closing of this offering, and (iii) the filing and effectiveness of our amended and restated certificate of incorporation upon the closing of this offering.

(2) The pro forma as adjusted consolidated balance sheet data gives effect to the pro forma adjustments set forth in footnote (1) above and our issuance and sale of shares of our common stock offered in this offering at an assumed initial public offering price of $ per share, which is the estimated midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information set forth in the table above is illustrative only and will be adjusted based on the actual initial public offering price and other terms of this offering as determined at pricing.

(3) We define working capital as current assets less current liabilities. See our consolidated financial statements included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the estimated midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the pro forma as adjusted amount of each of our cash and cash equivalents, working capital, total assets, and total members'/shareholders' equity (deficit) by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase or decrease of 1,000,000 shares in the number of shares offered by us as set forth on the cover page of this prospectus, would increase or decrease, as applicable, the pro forma as adjusted amount of each of cash and cash equivalents, working capital, total assets, and total members'/shareholders' equity (deficit) by $ million, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below together with all of the other information contained in this prospectus, including our consolidated financial statements and related notes appearing at the end of this prospectus, before deciding to invest in our common stock. If any of the events or developments described below were to occur, our business, prospects, operating results and financial condition could suffer materially, the trading price of our common stock could decline and you could lose all or part of your investment. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may also adversely affect our business.

Risks Related to Financial Position and Need for Capital

We have incurred significant losses since inception. We expect to incur losses for the foreseeable future and may never achieve or maintain profitability.

Since inception, we have incurred significant operating losses. Our net loss was $21.4 million and $43.6 million for the years ended December 31, 2021 and 2022, and $18.6 million and $29.1 million for the six months ended June 30, 2022 and 2023, respectively. As of June 30, 2023, we had an accumulated deficit of $105.8 million. We have financed our operations primarily through issuing redeemable convertible preferred units and convertible promissory notes and entering into collaboration agreements. Substantially all of our losses have resulted from expenses incurred in connection with our research and development and from general and administrative costs associated with our operations. We expect to continue to incur significant expenses and increasing operating losses for the foreseeable future. The net losses we incur may fluctuate significantly from quarter to quarter. We anticipate that our expenses will increase substantially if and as we:

- advance our current research activities and further develop our platform;
- continue preclinical development and initiate clinical trials for any product candidates we may identify;
- seek regulatory approval for any product candidates for which we successfully complete clinical trials;
- establish our manufacturing capabilities, including internal manufacturing facilities and contracting with other vendors;
- ultimately, commercialize our future product candidates requiring significant marketing, sales, and distribution infrastructure expenses;
- hire additional research and development, clinical, commercial, general and administration personnel;
- develop, maintain, expand, protect, and enforce our intellectual property portfolio;
- acquire or in-license product candidates, intellectual property and technologies;
- confirm, maintain or obtain freedom to operate for any of our owned or licensed technologies and product candidates;
- establish and maintain collaborations;
- add operational, financial and management information systems and personnel; or
- incur additional legal, audit, accounting, compliance, insurance, investor relations and other expenses to operate as a public company that we did not incur as a private company.

As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through the sale of equity, debt financings, or other capital sources, which may include collaborations with other companies or other strategic transactions. We may be unable to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as and when needed, we may have to significantly delay, reduce or eliminate the development and commercialization of our platform or delay our pursuit of potential in-licenses or acquisitions.

We have not initiated clinical development of any potential product candidate and expect that it will be many years, if ever, before we have a product candidate ready for commercialization. To become and remain profitable, we must develop and, either directly or through collaborators, eventually commercialize a therapy or therapies with market potential. This will require us to be successful in a range of challenging activities, including identifying product candidates, completing preclinical studies and clinical trials of product candidates, obtaining regulatory approval for these product candidates, manufacturing, marketing and selling those therapies for which we may obtain regulatory approval and satisfying any post-marketing requirements. We may never succeed in these activities and, even if we do, may never generate revenues that are significant or large enough to achieve profitability.

Because of the numerous risks and uncertainties associated with developing our technology and any potential product candidates, we are unable to predict the extent of any future losses or when we will become profitable, if at all. If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease the value of our company and could impair our ability to raise capital, maintain our research and development efforts, expand our business or continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

We have never generated revenue from product sales and may never become profitable.

Our ability to generate revenue from product sales and achieve profitability depends on our ability, alone or with collaborative partners, to successfully complete the development of, and obtain the regulatory approvals necessary to commercialize, product candidates we may identify for development. We may not generate revenues from product sales for many years, if ever. Our ability to generate future revenues from product sales depends heavily on our or our collaborators' ability to successfully:

- identify product candidates and successfully complete research development of any product candidates we may identify;
- seek and obtain regulatory approvals for any product candidates for which we successfully complete clinical trials;
- launch and commercialize any product candidates for which we may obtain regulatory approval by establishing a sales force, marketing and distribution infrastructure, or alternatively, collaborating with a commercialization partner;
- qualify for adequate coverage and reimbursement by government and third-party payors for any product candidates for which we may obtain regulatory approval;
- establish and maintain supply and manufacturing relationships with third parties that can provide adequate, in both amount and quality, products and services to support clinical development and the market demand for any product candidates for which we obtain regulatory approval;

- develop, maintain and enhance a sustainable, scalable, reproducible and transferable manufacturing process for the product candidates we may develop;
- address competing technological and market developments;
- negotiate favorable terms in any collaboration, licensing or other arrangements into which we may enter and performing our obligations in such collaborations;
- receive market acceptance by physicians, patients, healthcare payors, and others in the medical community;
- maintain, protect, enforce, defend and expand our portfolio of intellectual property and other proprietary rights, including patents, trade secrets and know-how;
- defend against third-party intellectual property claims of infringement, misappropriation or other violation; and
- attract, hire and retain qualified personnel.

Our expenses could increase beyond expectations if we are required by the U.S. Food and Drug Administration (the "FDA") or other regulatory authorities to perform preclinical studies or clinical trials in addition to those that we currently anticipate. Even if one or more of the product candidates we may develop are approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved product candidate. Additionally, such products may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives. Even if we are able to generate revenues from the sale of any approved product candidates, we may not become profitable and may need to obtain additional funding to continue operations.

We will need substantial additional funding in addition to the net proceeds we receive from this offering. If we are unable to raise additional capital when needed on acceptable terms, or at all, we may be forced to delay, reduce, or terminate certain of our research and product development programs, future commercialization efforts or other operations.

Developing gene editing products, including conducting preclinical studies and clinical trials, is a very time-consuming, expensive and uncertain process that takes years to complete. Our operations have consumed substantial amounts of cash since inception, and we expect our expenses to increase in connection with our ongoing activities, particularly as we identify, continue the research and development of, initiate and conduct clinical trials of, and seek regulatory approval for, any product candidates we may identify. In addition, if we obtain regulatory approval for any product candidates we may identify, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing, and distribution to the extent that such sales, marketing, manufacturing, and distribution are not the responsibility of a collaborator. Other unanticipated costs may also arise. Furthermore, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on acceptable terms, we would be forced to delay, reduce, or eliminate our research and product development programs, future commercialization efforts or other operations.

As of June 30, 2023, our cash, cash equivalents and available-for-sale marketable securities were $318.4 million. We expect that the net proceeds from this offering, together with our existing cash, cash equivalents, and available-for-sale marketable securities, will enable us to fund our operating expenses and capital expenditure requirements into . However, our operating plan may change as a result of factors currently unknown to us, and we may need to seek funding sooner than planned. Our future capital requirements will depend on many factors, including:

- the timing and progress of research and development, preclinical and clinical development activities;

- the number, scope and duration of clinical trials required for regulatory approval of our future product candidates;
- the costs, timing, and outcome of regulatory review of any of our future product candidates;
- the costs of manufacturing clinical and commercial supplies of our future product candidates;
- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for any of our future product candidates for which we receive regulatory approval;
- the costs of preparing, filing and prosecuting our patent applications, maintaining and enforcing our patents and other intellectual property rights and defending intellectual property-related claims;
- our ability to maintain existing, and establish new, strategic collaborations, licensing or other arrangements, and the financial terms of any such agreements, including the timing and amount of any future milestone, royalty or other payments due under any such agreement;
- our ability to establish and maintain collaboration and license agreements on favorable terms, if at all;
- the extent to which we acquire or in-license other product candidates and technologies;
- any product liability or other lawsuits related to our future product candidates;
- our implementation of various computerized informational systems and efforts to enhance operational systems;
- expenses incurred to attract, hire and retain skilled personnel;
- the costs of operating as a public company;
- our ability to establish a commercially viable pricing structure and obtain approval for coverage and adequate reimbursement from third-party and government payers;
- the extent to which we acquire or invest in businesses, products, and technologies;
- the effect of competing technological and market developments; and
- the impact of the COVID-19 pandemic, as well as other factors, including economic uncertainty and geopolitical tensions, which may exacerbate the magnitude of the factors discussed above.

Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive, and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain regulatory approval and achieve product sales. In addition, our future product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of products that we do not expect to be commercially available for many years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, declaring dividends, and possibly other restrictions.

Any additional fundraising efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates. We have no committed sources of additional capital and, if we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we may have to significantly delay, scale back or discontinue the development or commercialization of our future product candidates or other research and development initiatives. Without sufficient funding, our license agreements and any future collaboration agreements may also be terminated if we are unable to meet the payment or other obligations under such agreements.

If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce, or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves. Additionally, if we raise funds through additional collaborations, strategic alliances, or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs, or product candidates we develop, or we may have to grant licenses on terms that may not be favorable to us and/or that may reduce the value of our common stock.

Our short operating history may make it difficult for you to evaluate the success of our business to date and to assess our future viability.

We are an early-stage company. We commenced our operations in September 2018. Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, and research and development activities such as acquiring and developing our platform and technology and identifying and beginning to advance preclinical testing of potential product candidates. All of our programs are still in the research or lead optimization stage of development and their risk of failure is high. We have not yet demonstrated an ability to initiate or successfully complete any clinical trials, including large-scale, pivotal clinical trials, obtain regulatory approvals, manufacture a commercial-scale therapy, arrange for a third party to do so on our behalf or conduct sales and marketing activities necessary for successful commercialization.

Our limited operating history, particularly in light of the rapidly evolving genome editing field, may make it difficult to evaluate our technology and industry and predict our future performance. Our short history as an operating company makes any assessment of our future success or viability subject to significant uncertainty. We will encounter risks and difficulties frequently experienced by very early stage companies in rapidly evolving fields. If we do not address these risks successfully, our business will suffer.

In addition, as a new business that is rapidly growing, we may encounter other unforeseen expenses, difficulties, complications, and delays in our product development. We will need to transition from a company with a research focus to a company capable of conducting clinical trials and ultimately supporting commercial activities if any of our future product candidates are approved. We may not be successful in such a transition.

Our future ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.

Since our inception, we have incurred losses and we may never achieve profitability. As of December 31, 2022, we had U.S. federal net operating loss carryforwards of $0.02 million (which are not subject to expiration) and state net operating loss carryforwards of $8.3 million (which begin to expire in various amounts in 2037), and $2.8 million of research credit carryforwards for state income tax purposes (which do not expire and can be carried forward indefinitely). To the extent that we continue to generate taxable losses, under current law, our unused U.S. federal net operating losses (“NOLs”) may be carried forward to offset a portion of future taxable income, if any. Additionally, we continue to generate business tax credits, including research and development tax credits, which generally may be carried forward to offset a portion of future taxable income, if any, subject

to expiration of such credit carryforwards. Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the "Code"), if a corporation undergoes an "ownership change," generally defined as one or more shareholders or groups of shareholders who own at least 5 percent of the corporation's equity increasing their equity ownership in the aggregate by more than 50 percentage points (by value) over a three-year period, the corporation's ability to use its pre-change NOLs and other pre-change tax attributes (such as research and development tax credits) to offset its post-change income or taxes may be limited. Similar rules may apply under state tax laws. Our prior equity offerings and other changes in our stock ownership have resulted in such ownership changes in the past. In addition, we may experience ownership changes in the future as a result of this offering or subsequent shifts in our stock ownership, some of which are outside of our control. As a result, if we earn net taxable income, our ability to use our pre-change NOLs or other pre-change tax attributes to offset U.S. federal taxable income may be subject to limitations, which could potentially result in increased future tax liability to us. Additional limitations on our ability to utilize our NOLs to offset future taxable income may arise as a result of our corporate structure whereby NOLs generated by our subsidiary may not be available to offset taxable income earned by our subsidiary. There is a risk that due to changes under the tax law, regulatory changes or other unforeseen reasons, our existing NOLs or business tax credits could expire or otherwise be unavailable to offset future income tax liabilities. At the state level, there may also be periods during which the use of NOLs or business tax credits is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. For these reasons, we may not be able to realize a tax benefit from the use of our NOLs or tax credits, even if we attain profitability.

Changes in tax laws or in their implementation or interpretation may adversely affect our business and financial condition.

The rules dealing with U.S. federal, state and local income taxation are constantly under review by persons involved in the legislative process and by the Internal Revenue Service and the U.S. Treasury Department. Changes to tax laws (which changes may have retroactive application) could adversely affect our business and our financial condition. In recent years, many such changes have been made and changes are likely to continue to occur in the future. We cannot predict whether, when, in what form or with what effective dates, tax laws, regulations and rulings may be enacted, promulgated or decided or whether they could increase our tax liability or require changes in the manner in which we operate in order to minimize increases in our tax liability.

Risks Related to Business, Technology, and Industry

We are very early in our development efforts, and we have not yet initiated IND-enabling studies or clinical development of any product candidate. As a result, we expect it will be many years before we commercialize any product candidate, if ever. If we are unable to advance our future product candidates into and through clinical trials, obtain regulatory approval and ultimately commercialize our product candidates or experience significant delays in doing so, our business will be materially harmed.

We are very early in our development efforts and have focused our research and development efforts to date on research efforts including preclinical studies. Currently, all of our programs are still in the research or lead optimization stage of development. Our ability to generate product revenues, which we do not expect will occur for many years, if ever, will depend heavily on the successful development, regulatory approval and eventual commercialization of our future product candidates, which may never occur. We have not yet generated revenue from product sales, and we may never be able to develop or commercialize a marketable product.

Commencing clinical trials in the United States is subject to acceptance by the FDA of an investigational new drug ("IND") application and finalizing the trial design based on discussions with the FDA. In the event that the FDA requires us to complete additional preclinical studies or we are required to satisfy other FDA requests prior

to commencing clinical trials, the start of our first clinical trials may be delayed or we may be unsuccessful obtaining clearance to proceed into clinical development. Even after we receive and incorporate guidance from the FDA, the FDA could disagree that we have satisfied their requirements to commence any clinical trial or change their position on the acceptability of our trial design or the clinical endpoints selected, which may require us to complete additional preclinical studies or clinical trials, delay the enrollment of our clinical trials, abandon our clinical development plans or meet stricter approval conditions than we currently expect. There are equivalent processes and risks applicable to clinical trial applications in other countries, including countries in the European Union.

In addition, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not guarantee regulatory approval in any other country. We may conduct one or more of our clinical trials with one or more trial sites that are located outside the United States. Although the FDA may accept data from clinical trials conducted outside the United States, acceptance of these data is subject to conditions imposed by the FDA, and there can be no assurance that the FDA will accept data from trials conducted outside of the United States. If the FDA does not accept the data from any trial that we conduct outside the United States, it would likely result in the need for additional trials, which would be costly and time-consuming and could delay or permanently halt our development of the applicable product candidates.

Commercialization of any product candidates we may develop will require preclinical and clinical development; regulatory approval in multiple jurisdictions; manufacturing supply, capacity and expertise; a commercial organization; and significant marketing efforts. The success of product candidates we may identify and develop will depend on many factors, including the following:

- timely and successful completion of preclinical studies, including toxicology studies, biodistribution studies and minimally efficacious dose studies in animals, where applicable;
- effective INDs or comparable foreign applications that allow commencement of our planned clinical trials or future clinical trials for any product candidates we may develop;
- successful enrollment and completion of clinical trials, including under the FDA's current Good Clinical Practices ("GCPs"), current Good Laboratory Practices ("GLPs"), and any additional regulatory requirements from foreign regulatory authorities;
- positive results from our future clinical trials that support a finding of safety and effectiveness and an acceptable risk-benefit profile in the intended populations;
- receipt of regulatory approvals from applicable regulatory authorities;
- establishment of arrangements through our own facilities or with third-party manufacturers for clinical supply and, where applicable, commercial manufacturing capabilities;
- establishment, maintenance, defense and enforcement of patent, trademark, trade secret and other intellectual property protection or regulatory exclusivity for any product candidates we may develop;
- commercial launch of any product candidates we may develop, if approved, whether alone or in collaboration with others;
- acceptance of the benefits and use of our product candidates we may develop, including method of administration, if and when approved, by patients, the medical community and third-party payors;
- effective competition with other therapies;

- maintenance of a continued acceptable safety, tolerability and efficacy profile of any product candidates we may develop following approval; and
- establishment and maintenance of healthcare coverage and adequate reimbursement by payors.

If we do not succeed in one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize any product candidates we may develop, which would materially harm our business. If we are unable to advance our product candidates to clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.

We are subject to additional development challenges and risks due to the novel nature of our genome editing technology.

Because our *in vivo* technology potentially involves genome editing across multiple cell and tissue types, we are subject to many of the challenges and risks that other genome editing therapeutics and gene therapies face, including:

- regulatory guidance regarding the requirements governing gene and genome editing therapy product candidates have changed and may continue to change in the future;
- to date, only a limited number of products that involve *in vivo* gene transfer have been approved globally;
- improper modulation of a gene sequence, including unintended editing events or insertion of a sequence into certain locations in a patient's chromosome, could lead to cancer, other aberrantly functioning cells or other diseases, including death;
- corrective expression of a missing protein in patients' cells could result in the protein being recognized as foreign, and lead to a sustained immunological reaction against the expressed protein or expressing cells, which could be severe or life-threatening; and
- regulatory agencies may require extended follow-up observation periods of patients who receive treatment using genome editing product candidates including, for example, the FDA's recommended 15-year follow-up observation period for these patients, and we will need to adopt such observation periods for product candidates we develop if required by the relevant regulatory agency, which could vary by country or region.

Furthermore, our technology has potential application for *ex vivo* immune cell editing strategies. Because *ex vivo* application of our technology potentially involves editing human cells and then delivering modified cells to patients, we may be subject to many of the challenges and risks that engineered cell therapies face. For example, clinical trials using engineered cell-based gene therapies may require unique products to be created for each patient and such individualistic manufacturing may be both inefficient and cost-prohibitive.

Clinical drug development involves a lengthy and expensive process, with an uncertain outcome. Because genome editing is novel and the regulatory landscape that will govern our potential product candidates is uncertain and may change, we cannot predict the time and cost of obtaining regulatory approval, if we receive it at all, for our potential product candidates.

The time required to obtain approval for any of our potential product candidates from the FDA, the European Medicines Agency ("EMA") or other comparable foreign regulatory authorities is unpredictable but typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the substantial discretion of regulatory authorities. For more information on the regulatory approval process, see "Business—Government Regulation." Clinical trials may fail to demonstrate that our product candidates are safe for humans and effective for indicated uses. Even if initial clinical trials in any of any product candidates we may develop are successful, such product candidates may fail to show the desired safety and efficacy in

later stages of clinical development despite having successfully advanced through preclinical studies and initial clinical trials. There is a high failure rate for drugs and biologics proceeding through clinical trials. A number of companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in later stage clinical trials even after achieving promising results in earlier stage clinical trials.

Because genome editing is novel, the regulatory requirements that will govern any novel genome editing product candidates we develop may continue to evolve. Within the broader genetic therapy field, a limited number of gene therapy products have received marketing authorization from the FDA and the EMA to date. Even with respect to more established products that fit into the categories of gene therapies or cell therapies, the regulatory landscape is still developing. Regulatory requirements governing gene therapy products and cell therapy products have changed frequently and may continue to change in the future. For example, in January 2020, the FDA issued several new guidance documents on gene therapy products, and in March 2022, the FDA published a draft guidance document providing recommendations for human genome editing gene therapy products. Moreover, there is substantial, and sometimes uncoordinated, overlap in those responsible for regulation of existing gene therapy products and cell therapy products. For example, in the United States, the FDA has established the Office of Therapeutic Products ("OTP") within its Center for Biologics Evaluation and Research ("CBER") to consolidate the review of gene therapy and related products, and the Cellular, Tissue and Gene Therapies Advisory Committee to advise CBER on its review. Gene therapy clinical trials may also be subject to review and oversight by an institutional biosafety committee ("IBC"), a local institutional committee that reviews and oversees certain basic and clinical research conducted at the institution participating in the clinical trial. Although the FDA decides whether individual gene therapy protocols may proceed, the review process and determinations of other reviewing bodies, such as an IBC or institutional review board ("IRB"), can impede or delay the initiation of a clinical trial, even if the FDA has reviewed the trial and approved its initiation. For example, more recently, some genome editing companies have seen significant delays in receiving FDA authorization to allow the initiation of their clinical trials, and has suspended ongoing trials, due to the FDA's placement of clinical holds on their INDs.

The same applies in the European Union. The EMA's Committee for Advanced Therapies ("CAT") is responsible for assessing the quality, safety and efficacy of advanced-therapy medicinal products (i.e. gene therapy, somatic-cell therapy or tissue-engineered medicines). The role of the CAT is to prepare a draft opinion on an application for marketing authorization for a gene therapy medicinal candidate that is submitted to the Committee for Medicinal Products for Human Use ("CHMP") before CHMP adopts its opinion which is submitted to the European Commission for the final decision on whether to grant a marketing authorization or not. In the European Union, the EMA publishes guidelines for the development and evaluation of gene therapy medicinal products to assist in preparing marketing authorization applications, however these are continually under review. The EMA may issue new guidelines concerning the development and marketing authorization for gene therapy medicinal products and require that we comply with these new guidelines.

Adverse developments in post-marketing experience or in clinical trials conducted by others of gene therapy products, cell therapy products or products developed through the application of genome editing technology may cause the FDA, the EMA and other regulatory bodies to revise the requirements for development or approval of our potential product candidates or limit the use of products utilizing genome editing technologies, either of which could materially harm our business. In addition, the clinical trial requirements of the FDA, the EMA and other regulatory authorities and the criteria these regulators use to determine the safety and efficacy of a product candidate vary substantially according to the type, complexity, novelty and intended use and market of the potential products. The regulatory approval process for novel product candidates can be more expensive and take longer than for other, better known or more extensively studied pharmaceutical or other product candidates. Regulatory agencies administering existing or future regulations or legislation may not allow production and marketing of products utilizing genome editing technology in a timely manner or under

technically or commercially feasible conditions. In addition, regulatory action or private litigation could result in expenses, delays or other impediments to our research programs or the commercialization of resulting products.

The regulatory review committees and advisory groups described above and any new guidelines they promulgate may lengthen the regulatory review process, require us to perform additional studies or trials, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of these treatment candidates or lead to significant post-approval limitations or restrictions. As we advance our research programs and develop future product candidates, we will be required to consult with these regulatory and advisory groups and to comply with applicable guidelines. If we fail to do so, we may be required to delay or discontinue development of any product candidates we identify and develop.

The genome editing field is relatively new and is evolving rapidly. We are focusing our research and development efforts on genome editing using programmable nucleases, base editing, and RNA and DNA-mediated integration systems (including prime editors and CRISPR-associated ("Cas") transposes), but other genome editing technologies may be discovered that provide significant advantages over such technologies, which could materially harm our business.

To date, we have focused our efforts on genome editing technologies using programmable nucleases, base editing, and RNA and DNA-mediated integration systems (including prime editors and Cas transposes backed by our metagenomics database. Other companies have previously undertaken research and development of genome editing technologies using zinc finger nucleases, engineered meganucleases and transcription activator-like effector nucleases, but to date none have obtained regulatory approval for a product candidate. There can be no certainty that genome editing technology will lead to the development of genetic medicines or that other genome editing technologies will not be considered better or more attractive for the development of medicines. A number of alternative approaches are being developed by others. Our investments may not be consistent with the expectations of our stockholders and may not produce the benefits that we expect, in which case our growth, business, financial condition, and results of operations could be adversely affected. See "Risk Factors—Risks Related to Business, Technology and Industry—We face significant competition in an environment of rapid technological change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer or more advanced or effective than ours, which may harm our financial condition and our ability to successfully market or commercialize any product candidates we may develop." Similarly, another new genome editing technology that has not been discovered yet may be more attractive than programmable nucleases, base editing, and RNA and DNA-mediated integration systems. Moreover, if we decide to develop genome editing technologies other than those involving such technologies, we cannot be certain we will be able to obtain rights to such technologies. Any of these factors could reduce or eliminate our commercial opportunity, and could have a material adverse effect on our business, financial condition, results of operations and prospects.

If any of the product candidates we may develop or the delivery modes we rely on cause undesirable side effects, it could delay or prevent their development or potential regulatory approval, limit the commercial potential or result in significant negative consequences following any potential regulatory approval.

To date, we have not evaluated any product candidates in human clinical trials. It is impossible to predict when or if any product candidates we may develop will ultimately prove safe in humans. In the genomic medicine field, there have been several significant adverse events from gene therapy treatments in the past, including reported cases of leukemia and death. Product candidates we may develop may be associated with undesirable side effects, unexpected characteristics or other serious adverse events, including off-target cuts of DNA, or the introduction of cuts in DNA at locations other than the target sequence. These off-target cuts could lead to

disruption of a gene or a genetic regulatory sequence at an unintended site in the DNA, or, in those instances where we also provide a segment of DNA to serve as a repair template, it is possible that following off-target cut events, DNA from such repair template could be integrated into the genome at an unintended site, potentially disrupting another important gene or genomic element. There is also the potential risk of delayed adverse events following exposure to genome editing therapy due to persistent biologic activity of the genetic material or other components of products used to carry the genetic material. Possible adverse side effects that could occur with treatment with genome editing products include an immunologic reaction after administration which could substantially limit the effectiveness of the treatment If any of our genome editing technologies demonstrate a similar effect, we may decide or be required to halt or delay preclinical development or clinical development of any product candidates we may develop. In addition to serious adverse events or side effects caused by any product candidate we may develop, the administration process or related procedures also can cause undesirable side effects. If any such events occur, our preclinical studies or clinical trials could be delayed, suspended or terminated. There can be no assurance that our genome editing technologies will not cause severe or undesirable side effects.

If in the future we are unable to demonstrate that such adverse events were caused by factors other than our product candidate, the FDA, the EMA or other comparable foreign regulatory authorities could order us to cease further clinical studies of, or deny approval of, any product candidates we develop for any or all targeted indications. Even if we are able to demonstrate that all future serious adverse events are not product-related, such occurrences could affect patient recruitment or the ability of enrolled patients to complete the trial. Moreover, if we elect, or are required, to delay, suspend or terminate any clinical trial of any product candidate we may develop, the commercial prospects of such product candidates may be harmed and our ability to generate product revenues from any of these product candidates may be delayed or eliminated. Any of these occurrences may harm our ability to identify and develop product candidates, and may harm our business, financial condition, result of operations and prospects significantly.

Viral vectors, including the adeno-associated virus (“AAV”), which are relatively new approaches used for disease treatment, also have known side effects, and for which additional risks could develop in the future. In past clinical trials that were conducted by others with non-AAV vectors, significant side effects were caused by gene therapy treatments, including reported cases of myelodysplasia, leukemia and death. Other potential side effects could include an immunologic reaction and insertional oncogenesis, which is the process whereby the insertion of a functional gene near a gene that is important in cell growth or division results in uncontrolled cell division, which could potentially enhance the risk of cancer. If the vectors we use demonstrate a similar side effect, or other adverse events, we may be required to halt or delay further clinical development of any potential product candidates. Such delayed adverse events may also occur in other viral vectors, including AAV vectors.

In addition to side effects and adverse events caused by our product candidates, the conditioning, administration process or related procedures which may be used to condition a patient for gene therapy treatment also can cause adverse side effects and adverse events. A gene therapy patient is generally administered cytotoxic drugs to remove stem cells from the bone marrow to create sufficient space in the bone marrow for the modified stem cells to engraft and produce new cells. This procedure compromises the patient’s immune system, and conditioning regimens have been associated with adverse events in clinical trial participants.

Additionally, if we successfully develop a product candidate and it receives regulatory approval, the FDA could require us to adopt a Risk Evaluation and Mitigation Strategy (“REMS”) to ensure that the benefits of treatment with such product candidate outweighs the risks for each potential patient, which may include, among other things, a medication guide outlining the risks of the product for distribution to patients, a communication plan

to healthcare practitioners, extensive patient monitoring, or distribution systems and processes that are highly controlled, restrictive, and more costly than what is typical for the industry. Furthermore, if we or others later identify undesirable side effects caused by any product candidate that we may develop that receives regulatory approval, several potentially significant negative consequences could result, including:

- regulatory authorities may revoke licenses or suspend, vary or withdraw approvals of such product candidate;
- regulatory authorities may require additional warnings on the label;
- we may be required to change the way a product candidate is administered or conduct additional clinical trials;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of our genome editing technology and any product candidates we may identify and develop and could have a material adverse effect on our business, financial condition, results of operations and prospects.

Positive results from early preclinical studies of any product candidates we may develop may not necessarily be predictive of the results of later preclinical studies and any future clinical trials of such product candidates. If we cannot replicate the positive results from our earlier preclinical studies of any product candidates we may develop in our later preclinical studies and future clinical trials, we may be unable to successfully develop, obtain regulatory approval for and commercialize such product candidates.

Any positive results from our preclinical studies of any product candidates we may develop may not necessarily be predictive of the results from later preclinical studies and clinical trials of such product candidates. Similarly, even if we are able to complete our planned preclinical studies or any future clinical trials of any product candidates we may develop according to our current development timeline, the positive results from such preclinical studies and clinical trials of our product candidates may not be replicated in subsequent preclinical studies or clinical trial results.

Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in early-stage development and we cannot be certain that we will not face similar setbacks. These setbacks have been caused by, among other things, preclinical findings made while clinical trials were underway or safety or efficacy observations made in preclinical studies and clinical trials, including previously unreported adverse events. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses and many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials nonetheless failed to obtain regulatory approval.

We may also consider additional delivery modes, which may carry additional known and unknown risks.

We may also consider additional delivery modes, which may carry additional known and unknown risks. For example, we intend to use lipid nanoparticles (“LNPs”) to deliver our nucleases. While LNPs have been used to deliver smaller molecules, such as small interfering RNA (“siRNA”), they have not been clinically proven to deliver large RNA molecules. Furthermore, as with many AAV-mediated gene therapy approaches, certain patients’ immune systems might prohibit the successful delivery, thereby potentially limiting treatment outcomes of these patients. Even if initial clinical trials in any of our potential product candidates we may develop are successful, these product candidates we may develop may fail to show the desired safety and efficacy in later stages of clinical development despite having successfully advanced through preclinical studies and initial clinical trials.

We may find it difficult to enroll patients in our future clinical trials given the limited number of patients who have the diseases any product candidates we identify or develop are intended to target. If we experience delays or difficulties in the enrollment of patients in clinical trials, our clinical development activities and our receipt of necessary regulatory approvals could be delayed or prevented.

As we progress our programs, we may not be able to initiate or continue clinical trials for any product candidates we identify or develop if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA, the EMA or other comparable regulatory authorities outside the United States, or as needed to provide appropriate statistical power for a given trial. Enrollment may be particularly challenging for some of the rare genetically defined diseases we are targeting in some of our discovery programs. In addition, if patients are unwilling to participate in our genome editing trials because of negative publicity from adverse events related to the biotechnology, gene therapy or genome editing fields, competitive clinical trials for similar patient populations, clinical trials in competing product candidates or for other reasons, the timeline for recruiting patients, conducting studies and obtaining regulatory approval of our potential product candidates may be delayed. Moreover, some of our competitors may have ongoing clinical trials for product candidates that would treat the same indications as our potential product candidates, and patients who would otherwise be eligible for our future clinical trials may instead enroll in clinical trials of our competitors' product candidates.

Patient enrollment is also affected by other factors, some of which may include:

- severity of the disease under investigation;
- size of the patient population and process for identifying patients, including proximity and availability of clinical trial sites for prospective patients with conditions that have small patient pools;
- design of the trial protocol, including efforts to facilitate timely enrollment in clinical trials;
- availability and efficacy of approved medications for the disease under investigation;
- availability of genetic testing for potential patients and ability to monitor patients adequately during and after treatment;
- ability to obtain and maintain patient informed consent;
- risk that enrolled patients will drop out before completion of the trial;
- eligibility and exclusion criteria for the trial in question;
- perceived risks and benefits of the product candidate under trial and genome editing as a therapeutic approach; and
- patient referral practices of physicians.

In addition, our ability to successfully initiate, enroll and complete a clinical trial in any foreign country is subject to numerous risks unique to conducting business in foreign countries, some of which may include:

- difficulty in establishing or managing relationships with clinical research organizations ("CROs") and physicians;
- different standards for the conduct of clinical trials;
- different standard-of-care for patients with a particular disease;
- difficulty in locating qualified local consultants, physicians and partners; and
- potential burden of complying with a variety of foreign laws, medical standards and regulatory requirements, including the regulation of pharmaceutical and biotechnology products and treatment and of genome editing technologies.

Enrollment delays in our future clinical trials may result in increased development costs for our potential product candidates, which would cause the value of our company to decline and limit our ability to obtain additional financing. If we or our collaborators have difficulty enrolling a sufficient number of patients to conduct our future clinical trials as planned, we may need to delay, limit or terminate ongoing or planned clinical trials or entire clinical programs, any of which would have an adverse effect on our business, financial condition, results of operations and prospects.

Genetic therapies are novel, and any product candidates we develop may be complex and difficult to manufacture. We could experience delays in satisfying regulatory authorities or production problems that result in delays in our development programs, limit the supply of the product candidates we may develop or otherwise harm our business.

Any product candidates we may develop will likely require processing steps that are more complex than those required for most chemical pharmaceuticals. Moreover, unlike chemical pharmaceuticals, the physical and chemical properties of a biologic such as the product candidates we intend to develop generally cannot be fully characterized. As a result, assays of the finished product candidate may not be sufficient to ensure that the product candidate will perform in the intended manner. Problems with the manufacturing process, even minor deviations from the normal process, could result in product defects or manufacturing failures that result in lot failures, product recalls, product liability claims, insufficient inventory or potentially delay progression of our potential IND filings. If we successfully develop product candidates, we may encounter problems achieving adequate quantities and quality of clinical-grade materials that meet the FDA, the EMA or other comparable applicable foreign standards or specifications with consistent and acceptable production yields and costs. For example, the current approach of manufacturing AAV vectors may fall short of supplying required number of doses needed for advanced stages of preclinical studies or clinical trials, and the FDA may ask us to demonstrate that we have the appropriate manufacturing processes in place to support the higher-dose group in our preclinical studies or clinical trials. In addition, any product candidates we may develop will require complicated delivery methods, each of which will introduce additional complexities in the manufacturing process.

In addition, the FDA, the EMA and other regulatory authorities may require us to submit samples of any lot of any approved product together with the protocols showing the results of applicable tests at any time. Under some circumstances, the FDA, the EMA or other regulatory authorities may require that we not distribute a lot until the agency authorizes its release. Slight deviations in the manufacturing process, including those affecting quality attributes and stability, may result in unacceptable changes in the product that could result in lot failures or product recalls. Lot failures or product recalls could cause us to delay clinical trials or product launches, which could be costly to us and otherwise harm our business, financial condition, results of operations and prospects.

Given the nature of biologics manufacturing there is a risk of contamination during manufacturing. Any contamination could materially harm our ability to produce product candidates on schedule and could harm our results of operations and cause reputational damage. Some of the raw materials that we anticipate will be required in our manufacturing process are derived from biologic sources. Such raw materials are difficult to procure and may be subject to contamination or recall. A material shortage, contamination, recall or restriction on the use of biologically derived substances in the manufacture of any product candidates we may develop could adversely impact or disrupt the commercial manufacturing or the production of clinical material, which could materially harm our development timelines and our business, financial condition, results of operations and prospects.

Any problems in our manufacturing process or the facilities with which we contract could make us a less attractive collaborator for potential partners, including larger pharmaceutical companies and academic

research institutions, which could limit our access to additional attractive development programs. Problems in third-party manufacturing process or facilities also could restrict our ability to ensure sufficient clinical material for any clinical trials we may be conducting or are planning to conduct and meet market demand for any product candidates we develop and commercialize.

We face significant competition in an environment of rapid technological change, and there is a possibility that our competitors may achieve regulatory approval before us or develop therapies that are safer or more advanced or effective than ours, which may harm our financial condition and our ability to successfully market or commercialize any product candidates we may develop.

The development and commercialization of new drug products is highly competitive. Moreover, the genome editing field is characterized by rapidly changing technologies, significant competition and a strong emphasis on intellectual property. We will face competition with respect to any product candidates that we may seek to develop or commercialize in the future from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide. Potential competitors also include academic institutions, government agencies and other public and private research organizations that conduct research, seek patent or other intellectual property protection and establish collaborative arrangements for research, development, manufacturing and commercialization.

There are a number of large pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of products for the treatment of the disease indications for which we have research programs. Some of these competitive products and therapies are based on scientific approaches that are the same as or similar to our approach, while others are based on entirely different approaches.

Amongst publicly traded peers, there are several companies utilizing CRISPR/Cas technology, including Caribou Biosciences, Inc., Editas Medicine, Inc., CRISPR Therapeutics AG, Intellia Therapeutics, Inc. and Graphite Bio, Inc. Several additional companies such as Sangamo Therapeutics, Inc., Precision BioSciences, Inc., bluebird bio, Inc., and Cellectis Inc. utilize alternative nuclease-based genome editing technologies, including zinc finger nucleases (“ZFNs”), engineered meganucleases and transcription-activator like effector nucleases (“TALENs”). Beam Therapeutics utilizes base editing technology. Prime Medicine utilizes prime editing technology.

In addition, other private companies such as Tessera Therapeutics, Inc. and Tome Biosciences, Inc. have announced their work in recombinase DNA and RNA gene writers, although little is known publicly about their science or portfolio. Other companies have announced intentions to enter the genome editing field, such as Moderna, Inc. and Pfizer Inc. Most recently, new epigenetic editing companies have emerged, such as Chroma Medicine, Inc. and Tune Therapeutics, Inc. In addition, we face competition from companies utilizing gene therapy, oligonucleotides and cell therapy therapeutic approaches.

Several private companies such as Arbor Biotechnologies, Inc., Scribe Therapeutics Inc., and Mammoth Biosciences, Inc. are actively searching for novel genome editing components and have reported the discovery of new DNA-cutting enzymes. Other companies are active in LNP delivery technologies and advancing those into therapeutics using genetic therapies, including Recode Therapeutics, Inc., Verve Therapeutics, Inc., Generation Bio Co. and Beam Therapeutics, among others.

Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future that are approved to treat the same diseases for which we may obtain approval for any product candidates we may develop. This may include other types of therapies, such as small molecule, antibody and/or protein therapies.

Many of our current or potential competitors, either alone or with their collaboration partners, may have significantly greater financial resources and expertise in research and development, manufacturing, conducting preclinical studies and clinical trials, obtaining regulatory approvals and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical, biotechnology and gene therapy industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage

companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize product candidates that are safer, more effective, have fewer or less severe side effects, are more convenient, or are less expensive than any product candidates that we may develop or that would render any product candidates that we may develop obsolete or non-competitive. Our competitors also may obtain FDA or other regulatory approval for their product candidates more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. Additionally, technologies developed by our competitors may render our potential product candidates uneconomical or obsolete, and we may not be successful in marketing any product candidates we may develop against competitors.

In addition, as a result of the expiration or successful challenge of our patent or other intellectual property rights, we could face risks relating to our ability to successfully prevent or delay launch of competitors' products. The availability of our competitors' products could limit the demand and the price we are able to charge for any product candidates that we may develop and commercialize.

Adverse public perception of genome editing and cellular therapy products may negatively impact demand for, or regulatory approval of, any product candidates we may develop.

The product candidates we may develop will involve editing the human genome. The clinical and commercial success of any product candidates we may develop will depend in part on public acceptance of the use of genome editing therapies for the prevention or treatment of human diseases. Public attitudes may be influenced by claims that genome editing is unsafe, unethical, or immoral, and, consequently, our products may not gain the acceptance of the public or the medical community. Negative public reaction to gene therapy in general could result in greater government regulation and stricter labeling requirements of genome editing products, including any of our product candidates, and could cause a decrease in the demand for any products we may develop. Adverse public attitudes may adversely impact our ability to enroll clinical trials. Additionally, ethical, social and legal concerns about genome editing and gene therapy could result in additional regulations restricting or prohibiting any product candidates we may develop.

The commercial success of any of the product candidates we may develop will depend upon the degree of market acceptance by physicians, patients, third-party payors and others in the medical community.

Even if we obtain the requisite approvals from the FDA in the United States, the EMA in the European Union and other regulatory authorities internationally, the commercial success of any product candidates we may develop will depend, in part, on the acceptance of physicians, patients and health care payors of genome editing and gene therapy products in general, and our product candidates in particular, as medically necessary, cost-effective and safe. Any product that we commercialize may not gain acceptance by physicians, patients, health care payors and others in the medical community who may opt for existing treatments with which they are already familiar and for which greater clinical data may be available. The degree of market acceptance of genome editing and gene therapy products and, in particular, any product candidates we may develop, if approved for commercial sale, will depend on several factors, including:

- the efficacy, durability and safety of such product candidates as demonstrated in any future clinical trials;
- the potential and perceived advantages of such product candidates over alternative treatments;
- the cost of treatment relative to alternative treatments;

- the clinical indications for which the product candidate is approved by the FDA, the EMA or other regulatory authorities;
- patient awareness of, and willingness to seek, genotyping;
- the willingness of physicians to prescribe new therapies;
- the willingness of the target patient population to try new therapies;
- the prevalence and severity of any side effects;
- product labeling or product insert requirements of the FDA, the EMA or other regulatory authorities, including any limitations or warnings contained in a product's approved labeling;
- relative convenience and ease of administration;
- the strength of marketing and distribution support;
- the timing of market introduction of competitive products;
- publicity concerning our products or competing products and treatments; and
- sufficient third-party payor coverage and reimbursement.

Even if a potential product displays a favorable efficacy and safety profile in preclinical studies and future clinical trials, market acceptance of the product will not be fully known until after it is launched. If any product candidates we may develop do not achieve an adequate level of acceptance following regulatory approval, if ever, we may not generate significant product revenue and may not become profitable.

We may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

We have limited financial and managerial resources. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to timely capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

If, in the future, we are unable to establish sales and marketing capabilities or enter into agreements with third parties to sell and market products based on our technologies, we may not be successful in commercializing our future product candidates if and when any such product candidates are approved and we may not be able to generate any revenue.

We do not currently have a sales or marketing infrastructure and, as a company, have no experience in the sale, marketing or distribution of therapeutic products. To achieve commercial success for any potential approved product candidate for which we retain sales and marketing responsibilities, we must build our sales, marketing, managerial and other non-technical capabilities or make arrangements with third parties to perform these services. In the future, we may choose to build a focused sales and marketing infrastructure to sell, or participate in sales activities with our collaborators for, some of our product candidates if and when they are approved.

There are risks involved with both establishing our own sales and marketing capabilities and entering into arrangements with third parties to perform these services. For example, recruiting and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Factors that may inhibit our efforts to commercialize our product candidates on our own include:

- our inability to recruit, train and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future product that we may develop;
- the lack of complementary treatments to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

If we enter into arrangements with third parties to perform sales, marketing and distribution services, our product revenue or the profitability to us from these revenue streams is likely to be lower than if we were to market and sell any product candidates that we develop ourselves. In addition, we may not be successful in entering into arrangements with third parties to sell and market our product candidates or may be unable to do so on terms that are favorable to us. We likely will have little control over such third parties and any of them may fail to devote the necessary resources and attention to sell and market our product candidates effectively. If we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we may not be successful in commercializing our product candidates. Further, our business, results of operations, financial condition and prospects will be materially adversely affected.

Due to the novel nature of our technology and the potential for any product candidates we may develop to offer therapeutic benefit in a single administration or limited number of administrations, we face uncertainty related to pricing and reimbursement for such product candidates.

Our initial target patient populations are relatively small, as a result of which the pricing and reimbursement of any product candidates we may develop, if approved, must be adequate to support the necessary commercial infrastructure. If we are unable to obtain adequate levels of reimbursement, our ability to successfully market and sell any such product candidates will be adversely affected. The manner and level at which reimbursement is provided for services related to any product candidates we may develop (e.g., for administration of our product candidate to patients) is also important. Inadequate reimbursement for such services may lead to physician and payor resistance and adversely affect our ability to market or sell our product candidates. In addition, we may need to develop new reimbursement models in order to realize adequate value. Payors may not be able or willing to adopt such new models, and patients may be unable to afford that portion of the cost that such models may require them to bear. If we determine such new models are necessary but we are unsuccessful in developing them, or if such models are not adopted by payors, our business, financial condition, results of operations, and prospects could be adversely affected.

We expect the cost of a single administration of a genome editing therapy, such as those we are seeking to develop, to be substantial, when and if they achieve regulatory approval. We expect that coverage and reimbursement by government and private payors will be essential for most patients to be able to afford these treatments. Accordingly, sales of any such product candidates will depend substantially, both domestically and

abroad, on the extent to which the costs of any of our product candidates will be paid by government authorities, private health plans, and other third-party payors. Payors may not be willing to pay high prices for a single administration. Coverage and reimbursement by a third-party payor may depend upon several factors, including the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective, and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Obtaining coverage and reimbursement for a product from third-party payors is a time-consuming and costly process that could require us to provide to the payor supporting scientific, clinical, and cost-effectiveness data. There is significant uncertainty related to third-party coverage and reimbursement of newly approved products. We may not be able to provide data sufficient to gain acceptance with respect to coverage and reimbursement. If coverage and reimbursement are not available, or are available only at limited levels, we may not be able to successfully commercialize any of our product candidates. Even if coverage is provided, the approved reimbursement amount may not be adequate to realize a sufficient return on our investment.

In the United States, no uniform policy exists for coverage and reimbursement for products among third-party payors. Therefore, decisions regarding the extent of coverage and amount of reimbursement to be provided can differ significantly from payor to payor. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the reimbursement rate a payor will pay for the product. One third-party payor's decision to cover a particular product or service does not ensure that other payors will also provide coverage for the medical product or service. Third-party payors may limit coverage to specific products on an approved list or formulary, which may not include all FDA-approved products for a particular indication.

Further, third-party payors are increasingly challenging the price and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. In order to secure coverage and reimbursement for any product that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of any product candidates we may develop, in addition to the costs required to obtain FDA or comparable regulatory approvals. Additionally, we may also need to provide discounts to purchasers, private health plans or government healthcare programs. Despite our best efforts, any product candidates we may develop may not be considered medically necessary or cost-effective. If third-party payors do not consider a product to be cost-effective compared to other available therapies, they may not cover an approved product as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our products at a profit. A decision by a third-party payor not to cover a product could reduce physician utilization once the product is approved and have a material adverse effect on sales, our operations and financial condition. Finally, in some foreign countries, the proposed pricing for a product candidate must be approved before it may be lawfully marketed. The requirements governing product pricing vary widely from country to country. For example, in the EU, pricing and reimbursement of pharmaceutical products are regulated at a national level under the individual EU Member States' social security systems. Some foreign countries provide options to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and can control the prices of medicinal products for human use. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost effectiveness of a particular product candidate to currently available therapies. A country may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. There can be no assurance that any country that has price

controls or reimbursement limitations for products will allow favorable reimbursement and pricing arrangements for any of our product candidates. Even if approved for reimbursement, historically, product candidates launched in some foreign countries, such as some countries in the EU, do not follow price structures of the United States and prices generally tend to be significantly lower.

If we are not able to establish collaborations on a timely basis, on commercially reasonable terms, or at all, we may have to alter, reduce or delay our development and commercialization plans, or increase our expenditures to fund development or commercialization activities at our own expense.

For some of the product candidates we may develop, we may decide to collaborate with other pharmaceutical and biotechnology companies for the development and potential commercialization of those product candidates. We face significant competition in seeking appropriate collaborations and collaborations are complex and time-consuming to negotiate and document. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration, and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA, the EMA or similar regulatory authorities outside the United States, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to our ownership of technology, which can exist if there is a challenge to such ownership without regard to the merits of the challenge, and industry and market conditions generally. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us.

We may also be restricted under existing collaboration agreements from entering into future collaboration agreements on certain terms with potential collaborators. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators, which further increases competition we face in seeking potential collaborations.

We may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of the product candidate for which we are seeking to collaborate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to develop product candidates or bring them to market and generate product revenue.

Unfavorable global economic conditions could adversely affect our business, financial condition or results of operations.

Our results of operations could be adversely affected by general conditions in the global economy, geopolitical tensions and in the global financial markets. A severe or prolonged economic downturn or additional global financial and political crises could result in a variety of risks to our business, including weakened demand for any product candidates we develop or our ability to raise additional capital when needed on acceptable terms, if at all. A weak or declining economy could also strain our suppliers or other third parties and create import and export issues, possibly resulting in supply disruption. Any of the foregoing could harm our business and we cannot anticipate all of the ways in which the current economic climate and financial market conditions could adversely impact our business.

We face risks related to health epidemics, pandemics and other widespread outbreaks of contagious disease, including the COVID-19 pandemic, which could significantly disrupt our operations, impact our financial results or otherwise adversely impact our business.

Significant outbreaks of contagious diseases and other adverse public health developments could have a material impact on our business operations and operating results. For example, the spread of COVID-19 has affected segments of the global economy and our operations. As a result of the COVID-19 pandemic or similar public health crises that may arise, we may experience disruptions that could adversely impact our operations, research and development, and as we continue developing, any preclinical studies, clinical trials and manufacturing activities we may conduct, some of which may include:

- delays or disruptions in research programs, preclinical studies, clinical trials or IND-enabling studies that we or our collaborators may conduct;
- interruption or delays in the operations of the FDA, the EMA and comparable foreign regulatory agencies;
- interruption of, or delays in receiving and distributing, supplies of drug substance and drug product from our contract manufacturing organizations ("CMOs"), to preclinical or clinical research sites or delays or disruptions in any preclinical studies or clinical trials performed by CROs;
- limitations imposed on our business operations by local, state or federal authorities to address a pandemic or similar public health crises; and
- business disruptions caused by potential workplace, laboratory and office closures and an increased reliance on employees working from home, disruptions to or delays in ongoing laboratory experiments and operations, staffing shortages, travel limitations, and cybersecurity and data accessibility or security issues.

In addition, the trading prices for biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic and we may face similar volatility in our stock price after we complete this public offering. We cannot predict the scope and severity of any economic recovery after the COVID-19 pandemic abates, including following any additional "waves" or other intensifying of the pandemic. If we or any of the third parties with whom we engage were to experience additional shutdowns or other business disruptions, our ability to conduct our business in the manner and on the timelines presently planned could be materially and negatively affected, which could have a material adverse impact on our business, financial condition, our results of operations and prospects. Furthermore, the COVID-19 pandemic could exacerbate the other risks described in this section.

Our operations are vulnerable to interruption by disasters, terrorist activity, pandemics and other events beyond our control, which could harm our business.

Our facilities are located in California. We have not undertaken a systematic analysis of the potential consequences to our business and financial results from a major flood, power loss, terrorist activity, pandemics or other regional or global disasters and generally do not have a recovery plan for such events. In addition, we do not carry sufficient insurance to compensate us for actual losses from interruption of our business that may occur, and any losses or damages incurred by us could harm our business. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses.

We may use artificial intelligence in our business, and challenges with properly managing its use, as well as uncertainty regarding the legal landscape surrounding the use of AI could result in reputational harm, competitive harm, and legal liability, and adversely affect our results of operations.

We incorporate artificial intelligence ("AI") solutions into our platform, and these applications may become important in our operations over time. There are significant risks involved in utilizing AI and no assurance can be provided that the usage of such AI will enhance our business or assist our business in being more efficient or profitable. Known risks of AI currently include inaccuracy, bias, toxicity, intellectual property infringement or

misappropriation, data privacy and cybersecurity and data provenance. In addition, AI may have errors or inadequacies that are not easily detectable. AI may also be subject to data herding and interconnectedness (i.e., multiple market participants utilizing the same data), which may adversely impact our business. If the data used to train AI or the content, analyses, or recommendations that AI applications assist in producing are or are alleged to be deficient, inaccurate, incomplete, overbroad or biased, our business, financial condition, and results of operations may be adversely affected. The legal landscape and subsequent legal protection for the use of AI remains uncertain, and development of the law in this area could impact our ability to enforce our proprietary rights or protect against infringing uses. If we do not have sufficient rights to use the data on which AI relies or to the outputs produced by AI applications, we may incur liability through the violation of certain laws, third-party privacy or other rights or contracts to which we are a party. Our use of AI applications may also, in the future, result in cybersecurity incidents that implicate the personal data of customers or patients. Any such cybersecurity incidents related to our use of AI applications could adversely affect our reputation and results of operations.

Risks Related to Regulatory, Legal, and Clinical Trials

While we intend to seek designations for our potential product candidates with the FDA and comparable foreign regulatory authorities that are intended to confer benefits such as a faster development process or an accelerated regulatory pathway, there can be no assurance that we will successfully obtain such designations. In addition, even if one or more of our potential product candidates are granted such designations, we may not be able to realize the intended benefits of such designations.

The FDA and comparable foreign regulatory authorities offer certain designations for product candidates that are designed to encourage the research and development of product candidates that are intended to address conditions with significant unmet medical need. These designations may confer benefits such as additional interaction with regulatory authorities, a potentially accelerated regulatory pathway and priority review. However, there can be no assurance that we will successfully obtain such designations for any potential product candidates. In addition, while such designations could expedite the development or approval process, they generally do not change the standards for approval. Even if we obtain such designations for one or more of our potential product candidates, there can be no assurance that we will realize their intended benefits. For example, we may seek fast track designation for some of our potential product candidates. If a therapy is intended for the treatment of a serious or life threatening condition and the therapy nonclinical or clinical data demonstrates the potential to address unmet medical needs for this condition, the therapy sponsor may apply for fast track designation. The FDA has broad discretion whether or not to grant this designation, so even if we believe a particular product candidate is eligible for this designation, there can be no assurance that the FDA would decide to grant it. Even if we do receive fast track designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures, and receiving a fast track designation does not provide assurance of ultimate FDA approval. In addition, the FDA may withdraw fast track designation if it believes that the designation is no longer supported by data from our clinical development program. Additionally, we may seek a breakthrough therapy designation for some of our potential product candidates. A breakthrough therapy is defined as a therapy that is intended, alone or in combination with one or more other therapies, to treat a serious or life-threatening disease or condition, and preliminary clinical evidence indicates that the therapy may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For therapies that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Therapies designated as breakthrough therapies by the FDA may also be eligible for accelerated approval. Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe one of our potential product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and

instead determine not to make such designation. In any event, the receipt of a breakthrough therapy designation for a product candidate may not result in a faster development process, review or approval compared to therapies considered for approval under conventional FDA procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our potential product candidates qualify as breakthrough therapies, the FDA may later decide that such product candidates no longer meet the conditions for qualification. In addition, we may seek a regenerative medicine advanced therapy ("RMAT") designation for some of our potential product candidates. An RMAT is defined as cell therapies, therapeutic tissue engineering products, human cell and tissue products and combination products using any such therapies or products. Gene therapies, including genetically modified cells that lead to a durable modification of cells or tissues may meet the definition of a regenerative medicine therapy. The RMAT program is intended to facilitate efficient development and expedite review of RMATs, which are intended to treat, modify, reverse or cure a serious or life-threatening disease or condition. A new drug application or a biologics license application ("BLA") for an RMAT may be eligible for priority review or accelerated approval through (1) surrogate or intermediate endpoints reasonably likely to predict long-term clinical benefit or (2) reliance upon data obtained from a meaningful number of sites. Benefits of such designation also include early interactions with the FDA to discuss any potential surrogate or intermediate endpoint to be used to support accelerated approval. A regenerative medicine therapy that is granted accelerated approval and is subject to post-approval requirements may fulfill such requirements through the submission of clinical evidence, clinical trials, patient registries or other sources of real world evidence, such as electronic health records; the collection of larger confirmatory data sets; or post-approval monitoring of all patients treated with such therapy prior to its approval. RMAT designation is within the discretion of the FDA. Accordingly, even if we believe one of our potential product candidates meets the criteria for designation as a regenerative medicine advanced therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of RMAT designation for a product candidate may not result in a faster development process, review or approval compared to drugs considered for approval under conventional FDA procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our potential product candidates qualify as for RMAT designation, the FDA may later decide that the biological products no longer meet the conditions for qualification. We may also seek rare pediatric disease designation for some of our potential product candidates. The FDA defines "rare pediatric disease" as a (i) serious or life-threatening disease in which the serious or life-threatening manifestations primarily affect individuals aged from birth to 18 years, including age groups often called neonates, infants, children, and adolescents; and (ii) a rare disease or condition within the meaning of the Orphan Drug Act. Designation of a product candidate as a product for a rare pediatric disease does not guarantee that a marketing application for such product candidate will meet the eligibility criteria for a rare pediatric disease priority review voucher ("PRV") at the time the application is approved. Under the U.S. Federal Food, Drug, and Cosmetic Act ("FDCA"), we will need to request a rare pediatric disease PRV in our original marketing application for any potential product candidates for which we have received rare pediatric disease designation. The FDA may determine that a marketing application for any such product candidates, if approved, does not meet the eligibility criteria for a PRV. Under the current statutory sunset provisions, after September 30, 2024, the FDA may only award a PRV for an approved rare pediatric disease product application if the sponsor has rare pediatric disease designation for the drug or biologic that is the subject of such application, and that designation was granted by September 30, 2024. After September 30, 2026, the FDA may not award any rare pediatric disease PRVs. However, it is possible the authority for FDA to award rare pediatric disease PRV will be further extended by Congress. As such, if we do not obtain approval of a marketing application for any of our potential product candidates on or before September 30, 2026, and if the PRV program is not extended by Congressional action, we may not receive a PRV.

In the future, we may also seek approval of product candidates under the FDA's accelerated approval pathway. A product may be eligible for accelerated approval if it is designed to treat a serious or life-threatening disease or condition and generally provides a meaningful advantage over available therapies upon a determination that the

product candidate has an effect on a surrogate endpoint or intermediate clinical endpoint that is reasonably likely to predict clinical benefit or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality ("IMM") that is reasonably likely to predict an effect on IMM or other clinical benefit. The FDA considers a clinical benefit to be a positive therapeutic effect that is clinically meaningful in the context of a given disease, such as IMM. For the purposes of accelerated approval, a surrogate endpoint is a marker, such as a laboratory measurement, radiographic image, physical sign or other measure that is thought to predict clinical benefit, but is not itself a measure of clinical benefit. An intermediate clinical endpoint is a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit. The accelerated approval pathway may be used in cases in which the advantage of a new drug over available therapy may not be a direct therapeutic advantage, but is a clinically important improvement from a patient and public health perspective. If granted, accelerated approval is usually contingent on the sponsor's agreement to conduct, in a diligent manner, additional post-approval confirmatory studies to verity and describe the drug's clinical benefit. Under the Food and Drug Omnibus Reform Act of 2022 ("FDORA"), the FDA is permitted to require, as appropriate, that a post-approval confirmatory study or studies be underway prior to approval or within a specified time period after the date of approval for a product granted accelerated approval. FDORA also requires sponsors to send updates to the FDA every 180 days on the status of such studies, including progress toward enrollment targets, and the FDA must promptly post this information publicly. FDORA also gives the FDA increased authority to withdraw approval of a drug or biologic granted accelerated approval on an expedited basis if the sponsor fails to conduct such studies in a timely manner, send the necessary updates to the FDA, or if such post-approval studies fail to verify the drug's predicted clinical benefit. Under FDORA, the FDA is empowered to take action, such as issuing fines, against companies that fail to conduct with due diligence any post-approval confirmatory study or submit timely reports to the agency on their progress. There can be no assurance that the FDA would allow any of the product candidates we may develop to proceed on an accelerated approval pathway, and even if the FDA did allow such pathway, there can be no assurance that such submission or application will be accepted or that any expedited development, review or approval will be granted on a timely basis, or at all. Moreover, even if we received accelerated approval, any post-approval studies required to confirm and verify clinical benefit may not show such benefit, which could lead to withdrawal of any approvals we have obtained. Receiving accelerated approval does not assure that the product's accelerated approval will eventually be converted to a traditional approval.

If the FDA determines that a product candidate offers a treatment for a serious condition and, if approved, the product would provide a significant improvement in safety or effectiveness, the FDA may designate the product candidate for priority review. A priority review designation means that the goal for the FDA to review an application is six months, rather than the standard review period of ten months. We may request priority review for the product candidates that we may develop. The FDA has broad discretion with respect to whether or not to grant priority review status to a product candidate, so even if we believe a particular product candidate is eligible for such designation or status, the FDA may decide not to grant it. Moreover, a priority review designation does not necessarily result in an expedited regulatory review or approval process or necessarily confer any advantage with respect to approval compared to conventional FDA procedures. Receiving priority review from the FDA does not guarantee approval within the six-month review cycle or at all.

In addition, in the European Union, we may seek to participate in the PRIority Medicines ("PRIME") scheme for our potential product candidates. The PRIME scheme is intended to encourage development of products in areas of unmet medical need and provides accelerated assessment of products representing substantial innovation, where the marketing authorization application will be made through the centralized procedure in the European Union. Products from small- and medium-sized enterprises may qualify for earlier entry into the PRIME scheme than larger companies on the basis of compelling non-clinical data and tolerability data from initial clinical trials. Eligible products must target conditions for which there is an unmet medical need (no treatment option exists in the European Union or, they can offer a major therapeutic advantage over existing treatments). Many benefits accrue to sponsors of product candidates with PRIME designation, including but not

limited to, early and proactive regulatory dialogue with the EMA, frequent discussions on clinical trial designs and other development program elements, and accelerated marketing authorization application assessment once a dossier has been submitted. There is no guarantee, however, that our potential product candidates would be deemed eligible for the PRIME scheme and even if we do participate in the PRIME scheme, where during the course of development a product no longer meets the eligibility criteria, support under the PRIME scheme may be withdrawn. PRIME eligibility does not change the standards for product approval, and there is no assurance that any such designation or eligibility will result in expedited review or approval.

Healthcare and other reform legislation may increase the difficulty and cost for us and any collaborators we may have to obtain regulatory approval of and commercialize any product candidates we may develop and affect the prices we, or they, may obtain.

In the United States and some foreign jurisdictions, there have been and continue to be ongoing efforts to implement legislative and regulatory changes regarding the healthcare system. Such changes could prevent or delay regulatory approval of any product candidates that we may develop, restrict or regulate post-approval activities and affect our ability to profitably sell any product candidates for which we obtain regulatory approval. Although we cannot predict what healthcare or other reform efforts will be successful, such efforts may result in more rigorous coverage criteria, in additional downward pressure on the price that we, or our future collaborators, may receive for any approved products or in other consequences that may adversely affect our ability to achieve or maintain profitability.

Within the United States, the federal government and individual states have aggressively pursued healthcare reform, as evidenced by the passing of the Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the “ACA”), and the ongoing efforts to modify or repeal that legislation. The ACA significantly changed the way healthcare is financed by both governmental and private insurers and contains a number of provisions that affect coverage and reimbursement of drug products and/or that could potentially reduce the demand for pharmaceutical products such as increasing drug rebates under state Medicaid programs for brand name prescription drugs and extending those rebates to Medicaid managed care and assessing a fee on manufacturers and importers of brand name prescription drugs reimbursed under certain government programs, including Medicare and Medicaid. Other aspects of healthcare reform, such as expanded government enforcement authority and heightened standards that could increase compliance-related costs, could also affect our business. Modifications have been implemented under the former Trump administration and additional modifications or repeal may occur.

There have also been executive, judicial, and congressional challenges to certain aspects of the ACA. It is unclear how other healthcare reform measures of the Biden administration or other efforts, if any, to challenge, repeal or replace the ACA will impact our business. There is no assurance that federal or state healthcare reform will not adversely affect our future business and financial results, and we cannot predict how future federal or state legislative, judicial or administrative changes relating to healthcare reform will affect our business.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. For example, the American Rescue Plan Act of 2021 eliminates the statutory Medicaid drug rebate cap, currently set at 100 percent of a drug’s average manufacturer price, for single source and innovator multiple source drugs, beginning January 1, 2024. The U.S. Budget Control Act of 2011 and subsequent legislation, among other things, included aggregate reductions of Medicare payments to providers of 2% per fiscal year, which remain in effect through 2032. The American Taxpayer Relief Act of 2012 further reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Additionally, there has been increasing legislative and enforcement interest in the United States with respect to drug pricing practices, which has resulted in several U.S. Congressional inquiries and federal and state legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of

prescription drugs, and review the relationship between pricing and manufacturer patient programs. The Inflation Reduction Act of 2022 (the "IRA"), for example, includes several provisions that may impact our business to varying degrees, including provisions that reduce the out-of-pocket spending cap for Medicare Part D beneficiaries to $2,000 starting in 2025, eliminating the prescription drug coverage gap; impose new manufacturer financial liability on certain drugs under Medicare Part D, allow the U.S. government to negotiate Medicare Part B and Part D price caps for certain high-cost drugs and biologics without generic or biosimilar competition; require companies to pay rebates to Medicare for certain drug prices that increase faster than inflation; and delay until January 1, 2032 the implementation of an HHS rebate rule that would have limited the fees that pharmacy benefit managers can charge. Further, under the IRA, orphan drugs are exempted from the Medicare drug price negotiation program, but only if they have one orphan designation and for which the only approved indication is for that disease or condition. If a product receives multiple orphan designations or has multiple approved indications, it may not qualify for the orphan drug exemption. The effects of the IRA on our business and the healthcare industry in general is not yet known.

In addition, President Biden has issued multiple executive orders that have sought to reduce prescription drug costs. In February 2023, HHS issued a proposal in response to an October 2022 Biden executive order that proposes a Medicare drug pricing model that will test whether targeted Medicare payment adjustments will sufficiently incentivize manufacturers to complete confirmatory trials for drugs approved through the FDA's accelerated approval pathway. Although a number of these and other proposed measures may require authorization through additional legislation to become effective, and the Biden administration may reverse or otherwise change these measures, both the Biden administration and Congress have indicated that they will continue to seek new legislative measures to control drug costs.

We cannot predict the initiatives that may be adopted in the future. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare and/or impose price controls may adversely affect:

- the demand for our product candidates, if we obtain regulatory approval;
- our ability to set a price that we believe is fair for our approved products;
- our ability to generate revenue and achieve or maintain profitability;
- the level of taxes that we are required to pay; and
- the availability of capital.

Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors, which may adversely affect our future profitability.

Individual states in the United States have also become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain drug access and marketing cost disclosure and transparency measures, and designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions could harm our business, financial condition, results of operations and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for our drugs or put pressure on our drug pricing, which could negatively affect our business, financial condition, results of operations and prospects.

Because we are developing product candidates in the field of genetic medicines in which there is little clinical experience, there is increased risk that the FDA, the EMA or other regulatory authorities may not consider the endpoints of our clinical trials to provide clinically meaningful results and that these results may be difficult to analyze.

In order to proceed into clinical development of any product candidates we identify, we will need to submit INDs or clinical trial applications to regulatory authorities and obtain regulatory clearance to commence clinical

development. Because the product candidates we identify are based on novel gene-editing technology, we may be unsuccessful in obtaining clearance from regulatory authorities to proceed into clinical development. In order to commence clinical development, we will need to identify success criteria and endpoints such that the FDA, the EMA or other regulatory authorities will be able to determine the clinical efficacy and safety profile of any product candidates we may develop. As we are initially seeking to identify and develop product candidates to treat diseases in which there is little clinical experience using new technologies, and while we may have opportunities to discuss our clinical development plans with regulatory authorities prior to commencing clinical development, there is heightened risk that the FDA, the EMA or other regulatory authorities may not consider the clinical trial endpoints that we propose to provide clinically meaningful results (reflecting a tangible benefit to patients). In addition, the resulting clinical data and results may be difficult to analyze. Even if the FDA does find our success criteria to be sufficiently validated and clinically meaningful, we may not achieve the pre-specified endpoints to a degree of statistical significance. This may be a particularly significant risk for many of the genetically defined diseases for which we plan to develop product candidates because many of these diseases such as PH1 have small patient populations, and designing and executing a rigorous clinical trial with appropriate statistical power is more difficult than with diseases that have larger patient populations. Furthermore, even if we do achieve the pre-specified criteria, we may produce results that are unpredictable or inconsistent with the results of the non-primary endpoints or other relevant data. The FDA also weighs the benefits of a product against its risks, and the FDA may view the efficacy results in the context of safety as not being supportive of regulatory approval. Other regulatory authorities in the European Union and other countries may make similar comments with respect to these endpoints and data. Any product candidates we may develop will be based on a novel technology that makes it difficult to predict the time and cost of development and of subsequently obtaining regulatory approval. No genome editing therapeutic product has been approved in the United States or in Europe. Within the broader genome product field, only a limited number of gene therapy products, such as uniQure N.V.'s Glybera and Abecma from Bristol Myers Squibb and bluebird bio, have received marketing authorization or regulatory approval from the European Commission or the FDA. Some of these products have taken years to register and have had to deal with significant issues in their post-marketing experience.

If preclinical studies or clinical trials of any product candidates we may identify and develop fail to demonstrate safety and efficacy to the satisfaction of regulatory authorities or do not otherwise produce positive results, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of such product candidates.

Before obtaining regulatory approval from regulatory authorities for the sale of any product candidates we may identify and develop, we must complete preclinical development and then conduct extensive clinical trials to demonstrate the safety and efficacy in humans. Clinical testing is expensive, difficult to design and implement, can take many years to complete, and is uncertain as to outcome. A failure of one or more clinical trials can occur at any stage of testing. The outcome of preclinical testing and early clinical trials may not be predictive of the success of later clinical trials, and interim results of a clinical trial do not necessarily predict final results.

Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses. Many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain regulatory approval of their product candidates.

We and our collaborators, if any, may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our ability to receive regulatory approval or commercialize any product candidates we may identify and develop, including:

- delays in reaching a consensus with regulators on trial design;
- regulators, IRBs, or independent ethics committees may not authorize us or our investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- delays in reaching or failing to reach agreement on acceptable clinical trial contracts or clinical trial protocols with prospective CROs and clinical trial sites;

- clinical trials of any product candidates we may develop may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon product development or research programs;
- difficulty in designing well-controlled clinical trials due to ethical considerations which may render it inappropriate to conduct a trial with a control arm that can be effectively compared to a treatment arm;
- difficulty in designing clinical trials and selecting endpoints for diseases that have not been well-studied and for which the natural history and course of the disease is poorly understood;
- the number of patients required for clinical trials of any product candidates we may develop may be larger than we anticipate; enrollment of suitable participants in these clinical trials, which may be particularly challenging for some of the rare genetically defined diseases we are targeting in our most advanced programs, may be delayed or slower than we anticipate; or patients may drop out of these clinical trials at a higher rate than we anticipate;
- our third-party contractors may fail to comply with regulatory requirements or meet their contractual obligations to us in a timely manner, or at all;
- regulators, IRBs, or independent ethics committees may require that we or our investigators suspend or terminate clinical research or clinical trials of any product candidates we may develop for various reasons, including noncompliance with regulatory requirements, a finding of undesirable side effects or other unexpected characteristics, or that the participants are being exposed to unacceptable health risks or after an inspection of our clinical trial operations or trial sites;
- the cost of clinical trials of any product candidates we may develop may be greater than we anticipate;
- the supply or quality of any product candidates we may develop or other materials necessary to conduct preclinical studies or clinical trials of any product candidates we may develop may be insufficient or inadequate, including as a result of delays in the testing, validation, manufacturing, and delivery of any product candidates we may develop to the preclinical study sites or clinical sites by us or by third parties with whom we have contracted to perform certain of those functions;
- delays in having patients complete participation in a trial or return for post-treatment follow-up;
- clinical trial sites dropping out of a trial;
- selection of clinical endpoints that require prolonged periods of clinical observation or analysis of the resulting data;
- occurrence of serious adverse events associated with any product candidates we may develop that are viewed to outweigh their potential benefits;
- occurrence of serious adverse events in trials of the same class of agents conducted by other sponsors; and
- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols.

If we or our collaborators are required to conduct additional clinical trials or other testing of any product candidates we may develop beyond those that we currently contemplate, if we or our collaborators are unable to successfully complete clinical trials or other testing of any product candidates we may develop, or if the results of these trials or tests are not positive or are only modestly positive or if there are safety concerns, we or our collaborators may:

- be delayed in obtaining regulatory approval for any such product candidates we may develop or not obtain regulatory approval at all;
- obtain approval for indications or patient populations that are not as broad as intended or desired;
- obtain approval with labeling that includes significant use or distribution restrictions or safety warnings, including boxed warnings;
- be subject to changes in the way the product is administered;

- be required to perform additional clinical trials to support approval or be subject to additional post-marketing testing requirements;
- have regulatory authorities withdraw, or suspend, their approval of the product or impose restrictions on its distribution in the form of a REMS, or through modification to an existing REMS;
- be sued; or
- experience damage to our reputation.

Product development costs will also increase if we or our collaborators experience delays in clinical trials or other testing or in obtaining regulatory approvals. We do not know whether any clinical trials will begin as planned, will need to be restructured, or will be completed on schedule, or at all. Significant clinical trial delays also could shorten any periods during which we may have the exclusive right to commercialize any product candidates we may develop, could allow our competitors to bring products to market before we do, and could impair our ability to successfully commercialize any product candidates we may develop, any of which may harm our business, financial condition, results of operations, and prospects.

Failure to access or a significant delay in accessing animal research models may materially adversely affect our ability to advance our preclinical programs and successfully develop any product candidates we may identify, which could result in significant harm to our business.

Consistent with various rules, regulations and current good manufacturing practices (“cGMP”), our ability to advance our preclinical programs and successfully develop any product candidates we may identify requires access to animal research models sufficient to assess safety and in some cases to establish the rationale for therapeutic use. Failure to access or a significant delay in accessing animal research models that meet our needs or that fulfil regulatory requirements may materially adversely affect our ability to advance our preclinical programs and successfully develop any product candidates we may identify and this could result in significant harm to our business. During the COVID-19 pandemic, researchers and CROs (including those engaged by us) experienced significant limitations in their access to animal research models, specifically including a sharp reduction in the availability of non-human primates (“NHPs”) originating from breeding farms in Southeast Asia and limited access to the generation of genetically-modified rodent models used in efficacy evaluations. Prior to the pandemic, China was the leading exporter of NHPs employed in basic and applied research; however, early in 2020, China ceased exportation of cynomolgus monkeys, the species most commonly involved in pharmaceutical product development. This change in the world supply of a critical research model has resulted in increased demand from breeding farms principally located in Cambodia, Vietnam, and Mauritius Island, with a resultant marked increase in unit pricing. Consequently, this has further exacerbated an already constrained NHP supply for research purposes. If we are unable to obtain NHPs in sufficient quantities and in a timely manner to meet the needs of our preclinical research programs, if the price of NHPs that are available increases significantly, or if our suppliers are unable to ship the NHPs in their possession that are reserved for us, our ability to advance our preclinical programs and successfully develop any preclinical candidates we may identify may be materially adversely affected or significantly delayed.

Even if we complete the necessary clinical trials, we cannot predict when, or if, we will obtain regulatory approval to commercialize a product candidate we may develop in the United States or any other jurisdiction, and any such approval may be for a more narrow indication than we seek.

We cannot commercialize a product candidate until the appropriate regulatory authorities have reviewed and approved the product candidate. Even if our product candidates meet their safety and efficacy endpoints in clinical trials, the regulatory authorities may not complete their review processes in a timely manner, or we may not be able to obtain regulatory approval. Additional delays may result if an FDA advisory committee or other regulatory authority recommends non-approval or restrictions on approval. In addition, we may

experience delays or rejections based upon additional government regulation from future legislation or administrative action, or changes in regulatory authority policy during the period of product development, clinical trials, and the review process.

Regulatory authorities also may approve a product candidate for more limited indications than requested or they may impose significant limitations in the form of narrow indications, warnings or a REMS. These regulatory authorities may require labeling that includes precautions or contraindications with respect to conditions of use, or may grant approval subject to the performance of costly post-marketing clinical trials. In addition, regulatory authorities may not approve the labeling claims that are necessary or desirable for the successful commercialization of our product candidates. Any of the foregoing scenarios could materially harm the commercial prospects for our product candidates and materially adversely affect our business, financial condition, results of operations, and prospects.

Regulatory approval by the FDA in the United States, if obtained, does not ensure approval by regulatory authorities in other countries or jurisdictions. In addition, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not guarantee regulatory approval in any other country. Approval processes vary among countries and can involve additional product candidate testing and validation and additional administrative review periods. Seeking regulatory approval outside the United States could result in difficulties and costs for us and require additional preclinical studies or clinical trials which could be costly and time-consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of our product candidates in those countries. The foreign regulatory approval process involves all of the risks associated with FDA approval. We do not have any product candidates approved for sale in any jurisdiction, including international markets, and we do not have experience in obtaining regulatory approval in international markets. If we fail to comply with regulatory requirements in international markets or to obtain and maintain required approvals, or if regulatory approvals in international markets are delayed, our target market will be reduced and our ability to realize the full market potential of our product candidates will be unrealized.

Even if we, or any of our collaborators or strategic partners, obtain regulatory approvals for any product candidates we may develop, the terms of approvals and ongoing regulation of such product candidates could require the substantial expenditure of resources and may limit how we, or they, manufacture and market such product candidates, which could materially impair our ability to generate revenue.

Any product candidate for which we obtain regulatory approval, along with the manufacturing processes, post-approval clinical data, labeling, advertising and promotional activities for such product, will be subject to continual requirements of and review by the FDA, the EMA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, facility registration and drug listing requirements, cGMP relating to quality control, quality assurance and corresponding maintenance of records and documents, applicable product tracking and tracing requirements and requirements regarding the distribution of samples to physicians and recordkeeping. In addition, our manufacturing and testing facilities will be required to undergo pre-license inspections and pre-approval inspections. Even if regulatory approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the products may be marketed or to the conditions of approval, or contain requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the products.

Accordingly, assuming we, or any collaborators we may have, receive regulatory approval for one or more product candidates we develop, we, and such collaborators, and our and their contract manufacturers will continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production, product surveillance and quality control. If we and such collaborators are not able to comply with post-approval regulatory requirements, we and such collaborators could have the regulatory approvals for our products withdrawn by regulatory authorities and our, or such collaborators', ability to market any future

products could be limited, which could adversely affect our ability to achieve or sustain profitability. Furthermore, the cost of compliance with post-approval regulations may have a negative effect on our business, operating results, financial condition and prospects.

We may not be able to obtain orphan drug designation or exclusivity for our potential product candidates, and even if we do, that designation may not provide an expedited development or regulatory review or approval process and any orphan drug exclusivity we may receive for approved products may not prevent the FDA or the EMA from approving other competing products.

Under the Orphan Drug Act, the FDA may designate a product candidate as an orphan drug if it is a drug or biologic intended to treat a rare disease or condition. A similar regulatory scheme governs approval of orphan product candidates by the EMA in the European Union. Generally, if a product with an orphan drug designation subsequently receives the first regulatory approval for the indication for which it has such designation, the product is entitled to a period of marketing exclusivity, which precludes the FDA or the EMA (as applicable) from approving another marketing application for another similar product candidate for the same orphan therapeutic indication for that time period. The applicable period is seven years in the United States and ten years in the European Union. The exclusivity period in the European Union can be reduced to six years if at the end of the fifth year it is determined that a product no longer meets the criteria for orphan designation, including if the product is sufficiently profitable so that market exclusivity is no longer justified.

In order for the FDA to grant orphan drug exclusivity to one of our potential product candidates, the agency must find that the product candidate is indicated for the treatment of a condition or disease that affects fewer than 200,000 individuals in the United States or that affects 200,000 or more individuals in the United States and for which there is no reasonable expectation that the cost of developing and making the product candidate available for the disease or condition will be recovered from sales of the product in the United States. The FDA may conclude that the condition or disease for which we seek orphan drug exclusivity does not meet this standard. Even if we obtain orphan drug exclusivity for a product candidate, that exclusivity may not effectively protect the product candidate from competition because different product candidates can be approved for the same condition. In addition, even after an orphan drug is approved, the FDA can subsequently approve the same product candidate for the same condition if the FDA concludes that the later product candidate is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care compared with the product that has orphan exclusivity. Orphan drug exclusivity may also be lost if the FDA or EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the product to meet the needs of the patients with the rare disease or condition.

We are subject to U.S. and certain foreign export and import controls, sanctions, embargoes, anti-corruption laws, and anti-money laundering laws and regulations. Compliance with these legal standards could impair our ability to compete in domestic and international markets. We can face criminal liability and other serious consequences for violations, which can harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control, the U.S. Foreign Corrupt Practices Act of 1977, as amended (the "FCPA"), the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act, and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, contractors, and other collaborators from authorizing, promising, offering, or providing, directly or indirectly, improper payments or anything else of value to recipients in the public or private sector. We may engage third parties to sell our products outside the United States, to conduct clinical trials, and/or to obtain necessary permits, licenses, patent registrations, and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities,

and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, contractors, and other collaborators, even if we do not explicitly authorize or have actual knowledge of such activities. Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences.

If we or any contract manufacturers and suppliers we engage fail to comply with environmental, health, and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We and any contract manufacturers and suppliers we engage are subject to numerous federal, state, and local environmental, health, and safety laws, regulations, and permitting requirements, including those governing laboratory procedures; the generation, handling, use, storage, treatment, and disposal of hazardous and regulated materials and wastes; the emission and discharge of hazardous materials into the ground, air, and water; and employee health and safety. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. Under certain environmental laws, we could be held responsible for costs relating to any contamination at our current or past facilities and at third-party facilities. We also could incur significant costs associated with civil or criminal fines and penalties.

Compliance with applicable environmental laws and regulations may be expensive, and current or future environmental laws and regulations may impair our research and product development efforts. In addition, we cannot entirely eliminate the risk of accidental injury or contamination from these materials or wastes. Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We carry pollution insurance to protect against possible biological or hazardous waste accidents. However, in the event of contamination or injury, we could be held liable for damages or be penalized with fines in an amount exceeding our resources, and our clinical trials or regulatory approvals could be suspended, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

In addition, we may incur substantial costs in order to comply with current or future environmental, health, and safety laws, regulations, and permitting requirements. These current or future laws, regulations, and permitting requirements may impair our research, development, or production efforts. Failure to comply with these laws, regulations, and permitting requirements also may result in substantial fines, penalties, or other sanctions or business disruption, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Any third-party contract manufacturers and suppliers we engage will also be subject to these and other environmental, health, and safety laws and regulations. Liabilities they incur pursuant to these laws and regulations could result in significant costs or an interruption in operations, which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Our employees, principal investigators, consultants and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.

We are exposed to the risk of fraud or other misconduct by our employees, consultants and commercial partners, and, if we commence clinical trials, our principal investigators. Misconduct by these parties could

include intentional failures to comply with FDA regulations or the regulations applicable in the European Union and other jurisdictions, provide accurate information to the FDA, the EMA and other regulatory authorities, comply with healthcare fraud and abuse laws and regulations in the United States and abroad, report financial information or data accurately or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Such misconduct also could involve the improper use of information obtained in the course of clinical trials or interactions with the FDA, the EMA or other regulatory authorities, which could result in regulatory sanctions and cause serious harm to our reputation. We are also exposed to risks in connection with any insider trading violations by employees or others affiliated with us. Upon the effectiveness of this registration statement, we will adopt a code of conduct and an insider trading policy applicable to all of our employees, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from government investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, financial condition, results of operations and prospects, including the imposition of significant fines or other sanctions.

Product liability lawsuits against us could cause us to incur substantial liabilities and could limit commercialization of any product candidates that we may develop.

We will face an inherent risk of product liability exposure related to the testing of any product candidates we may develop in human clinical trials and will face an even greater risk if we commercially sell such product candidates. If we cannot successfully defend ourselves against claims that our product candidates caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in:

- decreased demand for any product candidates that we may develop;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend the related litigation;
- substantial monetary awards to trial participants or patients;
- loss of revenue; and
- the inability to commercialize any product candidates that we may develop.

We anticipate that we will need to increase our insurance coverage when we begin clinical trials and if we successfully commercialize any product candidate. Insurance coverage is increasingly expensive. We may not be able to maintain insurance coverage at a reasonable cost or in an amount adequate to satisfy any liability that may arise.

Our internal computer and information technology systems, or those of our third-party vendors, collaborators, contractors, consultants or other third parties, may fail, become unavailable, or suffer security incidents or data breaches, loss or leakage of data and other disruptions, which could result in a material disruption of our product development programs, compromise confidential, sensitive or personal information related to our business or prevent us from accessing critical information, potentially exposing us to liability or otherwise adversely affecting our business.

Our internal computer and information technology systems and those of our current and any future third-party vendors, collaborators, contractors, consultants or other third parties, are vulnerable to damage or interruption

from, among other things, computer viruses, computer hackers, phishing attacks, ransomware, malware, social engineering, service interruptions, system malfunction, malicious code, employee theft, fraud, misconduct or misuse, denial-of-service attacks, sophisticated nation-state and nation-state-supported actors, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we seek to protect our information technology systems from system failure, accident and security breach, we have in the past and may in the future experience phishing and other security incidents which could result in a disruption of our development programs and our business operations, whether due to a loss of our trade secrets or other proprietary, personal or confidential information or other disruptions. For example, the loss of clinical trial data from future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data.

Controls employed by our information technology department and other third parties could prove inadequate, and our ability to monitor such third parties' data security practices is limited. Due to applicable laws, rules, regulations and standards or contractual obligations, we may be held responsible for any information security failure or cybersecurity attack attributed to our third-party vendors as they relate to the information we share with them.

If we were to experience a cybersecurity breach or other security incident relating to our information systems or data, the costs, time and effort associated with the investigation, remediation and potential notification of the breach to counterparties, regulators and data subjects could be material. We may incur significant costs in an effort to detect and prevent security incidents, and we may face increased costs and requirements to expend substantial resources in the event of an actual or perceived security incident. In addition, techniques used to sabotage or to obtain unauthorized access to networks in which data is stored or through which data is transmitted change frequently, become more complex over time and generally are not recognized until launched against a target. The risk of a security breach or disruption, particularly through cyberattacks including supply chain attacks such as SolarWinds or cyber intrusion, including by computer hackers, foreign governments, and cyber terrorists, has generally increased as the number, intensity, and sophistication of attempted attacks and intrusions from around the world have increased. As a result, we and our third-party vendors may be unable to anticipate these techniques or implement adequate preventative measures quickly enough to prevent either an electronic intrusion into our systems or services or a compromise of critical information. We cannot guarantee that we will be able to detect or prevent any such incidents, and, our remediation efforts may not be successful or timely. Our efforts to improve security and protect data from compromise may also identify previously undiscovered instances of data breaches or other cybersecurity incidents. If we do not allocate and effectively manage the resources necessary to build and sustain the proper technology and cybersecurity infrastructure, we could suffer significant business disruption, including transaction errors, supply chain or manufacturing interruptions, processing inefficiencies, data loss or the loss of or damage to intellectual property or other proprietary, personal or confidential information. Additionally, we do not currently maintain cybersecurity insurance, and any insurance we may maintain in the future against the risk of this type of loss in the future may not be sufficient to cover actual losses, or may not apply to the circumstances relating to any particular loss.

To the extent that any disruption or security breach were to result in a loss of, or damage to, our or our third-party vendors', collaborators', contractors', consultants' or other third parties' data, including personal data, or applications or inappropriate disclosure, loss, destruction or alteration of, or access to, confidential, personal or proprietary information, we could incur significant liability including litigation exposure, substantial penalties and fines, we could become the subject of regulatory action, inquiry or investigation, our competitive position could be harmed, we could incur significant reputational damage and the further development and commercialization of any product candidates we may develop could be delayed. Any of the above could have a material adverse effect on our business, financial condition, results of operations or prospects.

Laws and regulations governing any international operations we may have in the future may preclude us from developing, manufacturing and selling certain product candidates we may identify outside of the United States and require us to develop and implement costly compliance programs.

We are subject to numerous laws and regulations in each jurisdiction outside the United States in which we operate. The creation, implementation and maintenance of international business practices compliance programs is costly and such programs are difficult to enforce, particularly where reliance on third parties is required.

The FCPA, prohibits any U.S. individual or business from paying, offering, authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with certain accounting provisions requiring the company to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international operations. The anti-bribery provisions of the FCPA are enforced primarily by the Department of Justice. The SEC is involved with enforcement of the books and records provisions of the FCPA.

Similarly, the U.K. Bribery Act 2010 has extra-territorial effect for companies and individuals having a connection with the United Kingdom. The U.K. Bribery Act prohibits inducements both to public officials and private individuals and organizations. Compliance with the FCPA and the U.K. Bribery Act is expensive and difficult, particularly in countries in which corruption is a recognized problem. In addition, the FCPA presents particular challenges in the pharmaceutical industry, because, in many countries, hospitals are operated by the government, and doctors and other hospital employees are considered foreign officials. Certain payments to hospitals in connection with clinical trials and other work have been deemed to be improper payments to government officials and have led to FCPA enforcement actions.

Various laws, regulations and executive orders also restrict the use and dissemination outside of the United States, or the sharing with certain non-U.S. nationals, of information classified for national security purposes, as well as certain products and technical data relating to those products. Our expansion outside of the United States has required, and will continue to require, us to dedicate additional resources to comply with these laws, and these laws may preclude us from developing, manufacturing or selling certain drugs and drug candidates outside of the United States, which could limit our growth potential and increase our development costs. The failure to comply with laws governing international business practices may result in substantial penalties, including suspension or debarment from government contracting. Violation of the FCPA can result in significant civil and criminal penalties. Indictment alone under the FCPA can lead to suspension of the right to do business with the U.S. government until the pending claims are resolved. Conviction of a violation of the FCPA can result in long-term disqualification as a government contractor. The termination of a government contract or relationship as a result of our failure to satisfy any of our obligations under laws governing international business practices would have a negative impact on our operations and harm our reputation and ability to procure government contracts. The SEC also may suspend or bar issuers from trading securities on U.S. exchanges for violations of the FCPA's accounting provisions.

We are subject to stringent and often unsettled laws, rules, regulations, policies, standards and contractual obligations related to data privacy and security and changes in such laws, rules, regulations, policies, standards and contractual obligations could adversely affect our business.

We are subject to data privacy and protection laws, rules, regulations, policies, standards and contractual obligations that apply to the collection, transmission, storage, use, disclosure, transfer, maintenance and other

processing of sensitive, personal and personally-identifying information, which, among other things, impose certain requirements relating to the privacy, security, transmission and other processing of personal information, including comprehensive regulatory systems in the United States and European Union. The legislative and regulatory landscape for privacy and data protection continues to evolve in jurisdictions worldwide, and there has been an increasing focus on privacy and data protection issues with the potential to affect our business. However, our data privacy program is in its early stages and we have not yet assessed the applicability of and our compliance with data privacy-related laws, rules and regulations. As a result, we cannot guarantee that we are and have been in compliance with all applicable data privacy and protection laws, rules regulations, policies and standards, and we may need to expend significant resources to implement privacy compliance measures. Additionally, we rely on certain third-party vendors to process certain confidential, sensitive or personal information on our behalf. Failure by us or our third-party vendors to comply with any of these laws, rules, regulations, contractual obligations or standards could result in notification obligations, enforcement actions, regulatory investigations or inquiries, significant fines, imprisonment of company officials and public censure, litigation and claims for damages by affected individuals, customers or business partners, damage to our reputation and loss of goodwill, any of which could have a material adverse effect on our business, financial condition, results of operations or prospects.

There are numerous U.S. federal and state laws, rules and regulations related to the privacy and security of personal information. In particular, regulations promulgated pursuant to the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), establish privacy and security standards that limit the use and disclosure of individually identifiable health information, or protected health information, and require the implementation of administrative, physical and technological safeguards to protect the privacy of protected health information and ensure the confidentiality, integrity and availability of electronic protected health information. The Genetic Information Nondiscrimination Act of 2008 (“GINA”), which clarified that genetic information is protected under HIPAA and restricts the use and disclosure of genetic information.

Additionally, laws in all 50 states require businesses to provide notice to customers whose personally identifiable information has been disclosed as a result of a data breach. These laws are not consistent, and compliance in the event of a widespread data breach is difficult and may be costly. Moreover, states have been frequently amending existing laws, requiring attention to changing regulatory requirements. We also may be contractually required to notify patients or other counterparties of a security breach. Although we may have contractual protections with our service providers, any actual or perceived security breach could harm our reputation and brand, expose us to potential liability or require us to expend significant resources on data security and in responding to any such actual or perceived breach. Any contractual protections we may have from our service providers may not be sufficient to adequately protect us from any such liabilities and losses, and we may be unable to enforce any such contractual protections. In addition to government regulation, privacy advocates and industry groups have and may in the future propose self-regulatory standards from time to time. These and other industry standards may legally or contractually apply to us, or we may elect to comply with such standards. Determining whether personal information has been handled in compliance with applicable privacy standards and our contractual obligations can be complex and may be subject to changing interpretation.

If we are unable to properly protect the privacy and security of personal information, we could be alleged or actually found to have breached our contracts. Furthermore, if we fail to comply with applicable privacy laws, including applicable HIPAA privacy and security standards, we could face significant administrative, civil and criminal penalties. HHS has the discretion to impose penalties without attempting to resolve violations through informal means, and such enforcement activity can result in financial liability and reputational harm, and responses to such enforcement activity can consume significant internal resources. In addition, state attorneys general are authorized to bring civil actions seeking either injunctions or damages in response to violations that

threaten the privacy or security of the personal information of state residents. We cannot be sure how these laws, rules and regulations will be interpreted, enforced or applied to our operations. In addition to the risks associated with enforcement activities and potential contractual liabilities, our ongoing efforts to comply with evolving laws, rules and regulations at the international, federal and state level may be costly and require ongoing modifications to our policies, procedures and systems.

We make public statements about our use, collection, disclosure and other processing of personal information through our privacy policies and information provided on our website. Although we endeavor to comply with our public statements and documentation, we may at times fail to do so or be alleged to have failed to do so. The publication of our privacy policies and other statements that provide promises and assurances about data privacy and security can subject us to potential government or legal action if they are found to be deceptive, unfair or misrepresentative of our actual practices.

Data privacy remains an evolving landscape at both the domestic and international level, with new laws, rules and regulations coming into effect and continued legal challenges. For example, California enacted the California Consumer Privacy Act of 2018 ("CCPA"), which went into effect on January 1, 2020 and, among other things, requires companies that process information on California residents to make new disclosures to consumers about their data collection, use and sharing practices, allow consumers to opt out of certain data sharing with third parties and provide a new cause of action for data breaches. Additionally, California voters approved the California Privacy Rights Act ("CPRA"), which went into effect on January 1, 2023. The CPRA significantly modifies the CCPA, including by introducing additional obligations such as data minimization and storage limitations and granting additional rights to California residents such as correction of personal information and additional opt-out rights. The CPRA also creates a new state agency that will be vested with authority to implement and enforce the CCPA and the CPRA. The enactment of the CCPA is prompting a wave of similar legislative developments in other states and at the federal level, reflecting a trend toward more stringent privacy legislation in the United States. For example, at least four such state laws (in Virginia, Colorado, Connecticut and Utah) have taken effect, or are scheduled to take effect in 2023. Certain state laws may be more stringent or broader in scope, or offer greater individual rights, with respect to confidential, sensitive and personal information than federal, international or other state laws, and such laws may differ from each other, which may complicate compliance efforts.

Our efforts to comply with the evolving data protection laws, rules and regulations may be unsuccessful. It is possible that these laws, rules and regulations may be interpreted and applied in a manner that is inconsistent with our practices and our efforts to comply with the evolving data protection rules may be unsuccessful. The laws are not consistent, and compliance in the event of a widespread data breach is costly and time-consuming. States are also frequently amending existing laws, requiring attention to frequently changing regulatory requirements. We must devote significant resources to understanding and complying with this changing landscape. Failure by us or our third-party vendors to comply with laws, rules and regulations regarding data privacy and protection would expose us to risk of enforcement actions taken by data protection authorities and carries with it the potential for significant penalties if we are found to be non-compliant. Similarly, failure to comply with federal and state laws, rules and regulations in the United States regarding privacy and security of personal information could expose us to penalties under such laws, rules and regulations. Any such failure by us or our third-party vendors to comply with data protection and privacy laws, rules and regulations could result in significant government-imposed fines or orders requiring that we change our practices, claims for damages or other liabilities, regulatory investigations and enforcement action, litigation and significant costs for remediation, any of which could adversely affect our business. Even if we are not determined to have violated these laws, rules or regulations, government investigations into these issues typically require the expenditure of significant resources and generate negative publicity, which could harm our business, financial condition, results of operations or prospects.

Risks Related to Third Party Relationships

If conflicts arise between us and our collaborators or strategic partners, these parties may act in a manner adverse to us and could limit our ability to implement our strategies.

If conflicts arise between our collaborators and corporate or strategic partners and us, the other party may act in a manner adverse to us and could limit our ability to implement our strategies. Some of our collaborators and strategic partners are conducting multiple product development efforts within each area that is the subject of the collaboration with us. Our collaborators or strategic partners, however, may develop, either alone or with others, products in related fields that are competitive with the product candidates we may develop that are the subject of these collaborations with us. Competing products, either developed by the collaborators or strategic partners or to which the collaborators or strategic partners have rights, may result in the withdrawal of partner support for any product candidates we may develop.

Additionally, some of our collaborators or strategic partners could also become our competitors in the future. Our collaborators or strategic partners could develop competing products, preclude us from entering into collaborations with their competitors, fail to obtain timely regulatory approvals, prevent us from obtaining timely regulatory approvals, terminate their agreements with us prematurely or fail to devote sufficient resources to the collaboration efforts, including development, delivery, manufacturing and commercialization of products. Any of these developments could harm our company and product development efforts.

We have entered into collaborations, and may enter into additional collaborations, with third parties for the research, development, manufacture and commercialization of programs or product candidates. If these collaborations are not successful, our business could be adversely affected.

As part of our strategy, we have entered into collaborations and intend to seek to enter into additional collaborations with third parties for one or more of our programs or product candidates we may develop. For example, in October 2021, we entered into a Strategic Collaboration and License Agreement with ModernaTX, Inc. (“Moderna”), focused on advancing new genome editing system for *in vivo* human therapeutic applications, in June 2022, we entered into a Development, Option and License Agreement with Affini-T Therapeutics, Inc. (“Affini-T”) to develop and commercialize gene edited T-cell receptor (“TCR”)-based therapeutic products exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with any engineered primary TCR alpha/beta T cells and non-exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with certain other engineered immune cells worldwide, and in November 2022, we entered into a Collaboration and License Agreement with Ionis Pharmaceuticals, Inc. (“Ionis”) to research, develop and commercialize investigational medicines using genome editing technologies. Our likely collaborators for any other collaboration arrangements include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. We have under these agreements, and we may have under any other arrangements that we may enter into with any third parties, limited control over the amount and timing of resources that collaborators dedicate to the development or commercialization of our product candidates. Our ability to generate revenue from these arrangements may depend on our collaborators’ abilities to successfully perform the functions assigned to them in these arrangements.

Collaborations that we enter into may not be successful, and any success will depend heavily on the efforts and activities of such collaborators. Collaborations pose a number of risks, including the following:

- collaborators have significant discretion in determining the amount and timing of efforts and resources that they will apply to these collaborations;
- collaborators may not perform their obligations as expected;

- collaborators may not pursue development of our product candidates or may elect not to continue or renew development programs based on results of clinical trials or other studies, changes in the collaborators' strategic focus or available funding, or external factors, such as an acquisition, that divert resources or create competing priorities;
- collaborators may not pursue commercialization of any product candidates that achieve regulatory approval or may elect not to continue or renew commercialization programs based on results of clinical trials or other studies, changes in the collaborators' strategic focus or available funding, or external factors, such as an acquisition, that may divert resources or create competing priorities;
- collaborators may delay preclinical studies and clinical trials, provide insufficient funding for a preclinical study or clinical trial program, stop a preclinical study or clinical trial or abandon a product candidate, repeat or conduct new preclinical studies or clinical trials or require a new formulation of a product candidate for preclinical or clinical testing;
- we may not have access to, or may be restricted from disclosing, certain information regarding product candidates being developed or commercialized under a collaboration and, consequently, may have limited ability to inform our stockholders about the status of such product candidates on a discretionary basis;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates and products if the collaborators believe that the competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- product candidates discovered in collaboration with us may be viewed by our collaborators as competitive with their own product candidates or products, which may cause collaborators to cease to devote resources to the commercialization of our product candidates;
- a collaborator may fail to comply with applicable regulatory requirements regarding the development, manufacture, distribution or marketing of a product candidate or product;
- a collaborator with marketing and distribution rights to one or more of our product candidates that achieve regulatory approval may not commit sufficient resources to the marketing and distribution of such product or products;
- disagreements with collaborators, including disagreements over intellectual property or proprietary rights, contract interpretation or the preferred course of development, might cause delays or terminations of the research, development or commercialization of product candidates, might lead to additional responsibilities for us with respect to product candidates, or might result in litigation or arbitration, any of which would be time-consuming and expensive;
- collaborators may not properly obtain, maintain, enforce, defend or protect our intellectual property or proprietary rights or may use our proprietary information in such a way as to potentially lead to disputes or legal proceedings that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation;
- disputes may arise with respect to the ownership of intellectual property or other rights developed pursuant to our collaborations;
- collaborators may infringe, misappropriate or otherwise violate the intellectual property or proprietary rights of third parties, which may expose us to litigation and potential liability; and

- collaborations may be terminated for the convenience of the collaborator, and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable product candidates.

Collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner, or at all. If any current or future collaborations do not result in the successful development and commercialization of products or if one of our collaborators terminates its agreement with us, we may not receive any future research funding or milestone or royalty payments under the collaboration. If we do not receive the funding we expect under these agreements, our development of our product candidates could be delayed and we may need additional resources to develop our product candidates. All of the risks relating to product development, regulatory approval and commercialization described in this prospectus also apply to the activities of our collaborators.

Collaboration agreements may require us to incur non-recurring and other charges, increase our near- and long-term expenditures, issue securities that dilute our existing stockholders, or disrupt our management and business. For more information, see the section titled "Business—Our License and Collaboration Agreements."

We could face significant competition in seeking appropriate collaborators, and the negotiation process is time-consuming and complex. Our ability to reach a definitive collaboration agreement will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration, and the proposed collaborator's evaluation of several factors. If we license rights to any product candidates we or our collaborators may develop, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture.

We may also be restricted under existing collaboration agreements from entering into future collaboration agreements on certain terms with potential collaborators. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators, which further increases competition we face in seeking potential collaborations.

Additionally, subject to its contractual obligations to us, if a collaborator of ours is involved in a business combination, the collaborator might deemphasize or terminate the development or commercialization of any product candidate licensed to it by us. If one of our collaborators terminates its agreement with us, we may find it more difficult to attract new collaborators and our perception in the business and financial communities could be adversely affected.

Our collaborators and strategic partners may control aspects of our clinical trials, which could result in delays and other obstacles in the commercialization of our proposed products and materially harm our results of operations.

For some programs, we will depend on third party collaborators and strategic partners to design and conduct our clinical trials. As a result, we may not be able to conduct these programs in the manner or on the time schedule we currently contemplate, which may negatively impact our business operations. In addition, if any of these collaborators or strategic partners withdraw support for our programs or proposed products or otherwise impair their development, our business could be negatively affected.

In October 2021, we entered into a Strategic Collaboration and License Agreement with Moderna focused on advancing new genome editing system for *in vivo* human therapeutic applications, in June 2022, we entered into a Development, Option and License Agreement with Affini-T to develop and commercialize gene edited TCR-based therapeutic products exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with any engineered primary TCR alpha/beta T cells and non-exclusively in the field of

treatment, prevention or diagnosis of any human cancer using products with certain other engineered immune cells worldwide, and in November 2022, we entered into a Collaboration and License Agreement with Ionis to research, develop and commercialize investigational medicines for up to eight potential genetic targets using genome editing technologies. Our lack of control over the clinical development in our agreements with Moderna, Affini-T and Ionis could cause delays or other difficulties in the development and commercialization of product candidates, which may prevent completion of intended IND applications in a timely fashion, if at all.

In addition, the termination of these agreements would prevent us from receiving any milestone, royalty payments and other benefits under that agreement, which would have a materially adverse effect on our results of operations.

Our collaborators or strategic partners may decide to adopt alternative technologies or may be unable to develop commercially viable products with our technology, which would negatively impact our revenues and our strategy to develop these products.

Our collaborators or strategic partners may adopt alternative technologies, which could decrease the marketability of our genome editing technology. Additionally, because our current or future collaborators or strategic partners are likely to be working on more than one development project, they could choose to shift their resources to projects other than those they are working on with us. If they do so, this would delay our ability to test our technology and would delay or terminate the development of potential products based on our genome editing technology. Further, our collaborators and strategic partners may elect not to develop products arising out of our collaborative and strategic partnering arrangements or to devote sufficient resources to the development, manufacturing, marketing or sale of these products. The failure to develop and commercialize a product candidate pursuant to our agreements with our current or future collaborators would prevent us from receiving future milestone and royalty payments which would negatively impact our revenues.

We expect to rely on third parties to conduct our clinical trials and some aspects of our research, as well as some aspects of our delivery methods, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, research or testing.

We expect to rely on third parties, such as CROs, clinical data management organizations, medical institutions, preclinical laboratories and clinical investigators, to conduct some aspects of our research. For example, we may rely on a third party to supply LNPs or AAVs, or to conduct our preclinical animal experiments. Any of these third parties may terminate their engagements with us at any time under certain criteria. If we need to enter into alternative arrangements, it may delay our product development activities.

Our reliance on these third parties for clinical research and other development activities will reduce our control over these activities but will not relieve us of our responsibilities. For example, we will remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA, the EMA and other regulatory authorities require us and the study sites and investigators we work with to comply with standards, commonly referred to as GLPs and GCPs for conducting, recording and reporting the results of preclinical studies and clinical trials to assure, amongst other things, that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. In the United States, we also are required to register certain clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within certain timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions.

Although we intend to design the preclinical studies and clinical trials for our potential product candidates, CROs will conduct some or all of the preclinical studies and clinical trials. As a result, many important aspects of our development programs, including their conduct and timing, will be outside of our direct control. Our reliance on third

parties to conduct preclinical studies and future clinical trials will also result in less direct control over the management of data developed through preclinical studies and clinical trials than would be the case if we were relying entirely upon our own staff. Communicating with outside parties can also be challenging, potentially leading to mistakes as well as difficulties in coordinating activities. Among other reasons that may delay or impact the development of our potential product candidates, outside parties may:

- have staffing difficulties;
- fail to comply with contractual obligations;
- experience regulatory compliance issues;
- undergo changes in priorities or become financially distressed; or
- form relationships with other entities, some of which may be our competitors.

These factors may materially adversely affect the willingness or ability of third parties to conduct our preclinical studies and clinical trials and may subject us to unexpected cost increases that are beyond our control. If the CROs and other third parties do not perform such preclinical studies and future clinical trials in a satisfactory manner, breach their obligations to us or fail to comply with regulatory requirements, the development, regulatory approval and commercialization of our potential product candidates may be delayed, we may not be able to obtain regulatory approval and commercialize our potential product candidates or our development programs may be materially and irreversibly harmed. If we are unable to rely on preclinical and clinical data collected by our CROs and other third parties, we could be required to repeat, extend the duration of or increase the size of any preclinical studies or clinical trials we conduct and this could significantly delay commercialization and require greater expenditures.

We may also expect to rely on other third parties to store and distribute drug supplies for our future clinical trials. Any performance failure on the part of our distributors could delay clinical development or regulatory approval of any product candidates we may develop or commercialization of our therapies, producing additional losses and depriving us of potential product revenue.

Manufacturing biologic products is complex and subject to product loss for a variety of reasons. We contract with third parties for the manufacture of certain materials for our development programs and expect to continue to do so for clinical trials and commercialization. This reliance on third parties increases the risk that we will not have sufficient quantities of our future product candidates or products or such quantities at an acceptable cost or quality, which could delay, prevent or impair our development or commercialization efforts.

We operate and are expanding our cGMP manufacturing facility which is currently capable of manufacturing clinical grade nucleases and mRNA to supply both wholly-owned and collaboration programs. We also partner with CMOs for guide RNA (“gRNA”) and DNA template development and supply. We also rely, and expect to continue to rely, on third parties for gRNA and DNA template development and supply, as well as for preclinical and clinical testing and commercial manufacture if any of our product candidates receive regulatory approval. We also expect to rely on these third parties for certain logistics, including packaging, labeling, storage, and distribution. This reliance on third parties increases the risk that we will not have sufficient quantities of our materials or future product candidates or products or such quantities at an acceptable cost or quality, which could delay, prevent or impair our development or commercialization efforts. We may be unable to establish any agreements with third-party manufacturers or to do so on acceptable terms. Even if we are able to establish agreements with third-party manufacturers, reliance on third-party manufacturers entails additional risks, including:

- reliance on the third party for regulatory compliance and quality assurance;
- the possible breach of the manufacturing agreement by the third party;

- the possible misappropriation of our proprietary information, including our trade secrets and know-how; and
- the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us.

We or our third-party manufacturers may encounter shortages in the raw materials or active pharmaceutical ingredients necessary to produce our future product candidates in the quantities needed for our preclinical studies or clinical trials or, if our future product candidates are approved, in sufficient quantities for commercialization or to meet an increase in demand, as a result of capacity constraints or delays or disruptions in the market for the raw materials or active pharmaceutical ingredients, including shortages caused by the purchase of such raw materials or active pharmaceutical ingredient by our competitors or others. The failure of us or our third-party manufacturers to obtain the raw materials or active pharmaceutical ingredients necessary to manufacture sufficient quantities of our future product candidates may have a material adverse effect on our business.

Components of a finished therapeutic product approved for commercial sale or used in late-stage clinical trials must be manufactured in accordance with cGMP. We, along with our third-party manufacturers, are subject to inspection and approval by regulatory authorities before we can commence the manufacture and sale of any of our future product candidates, and thereafter subject to ongoing inspection from time to time. We or our third-party manufacturers may not be able to comply with cGMP or similar regulatory requirements outside of the United States. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in regulatory actions, such as the issuance of FDA Form 483 notices of observations, warning letters or sanctions being imposed on us, including clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our products.

Manufacturing biologic products, such as the product candidates we intend to develop, is complex, especially in large quantities. Biologic products must be made consistently and in compliance with a clearly defined manufacturing process. Accordingly, it is essential to be able to validate and control the manufacturing process to assure that it is reproducible. Any product candidates and products that we may develop may compete with other product candidates and products for access to manufacturing facilities. As a result, we may not obtain access to these facilities on a priority basis or at all. There are a limited number of manufacturers that operate under cGMP and that might be capable of manufacturing for us.

Any performance failure on the part of our existing or future manufacturers could delay clinical development or regulatory approval. We do not currently have arrangements in place for redundant supply or a source for bulk drug substance nor do we have any agreements with third-party manufacturers for long-term commercial supply. If any of our contract manufacturers cannot perform as agreed, we may be required to replace such manufacturers. Although we believe that there are several potential alternative manufacturers who could manufacture materials or future product candidates or products we may develop, we may incur added costs and delays in identifying and qualifying any such replacement or be unable to reach agreement with an alternative manufacturer. If we are required to change third party-manufacturers for any reason, we will be required to verify that the new third party-manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations. We will also need to verify, such as through a manufacturing comparability study, that any new manufacturing process will produce our materials or future product candidates or products according to the specifications previously submitted to the FDA or another regulatory authority. The delays associated with the verification of a new third party-manufacturer could negatively affect our ability to develop product candidates or commercialize our products in a timely manner or within budget. Furthermore, a third party-manufacturer may possess technology related to the manufacture of

our materials or future product candidates or products that such third party-manufacturer owns independently. This would increase our reliance on such third party-manufacturer or require us to obtain a license from such third party-manufacturer in order to have another third party-manufacturer manufacture our materials or future product candidates or products, which may not be available on commercially reasonable terms, or at all. In addition, changes in manufacturers often involve changes in manufacturing procedures and processes, which could require that we conduct bridging studies between our prior clinical supply used in our clinical trials and that of any new manufacturer. We may be unsuccessful in demonstrating the comparability of clinical supplies which could require the conduct of additional clinical trials.

Our current and anticipated future dependence upon others for the manufacture of materials and any future product candidates or products we may develop may adversely affect our future profit margins and our ability to commercialize any products that receive regulatory approval on a timely and competitive basis.

Our relationships with healthcare providers, physicians, and third-party payors will be subject to applicable anti-kickback, fraud and abuse, anti-bribery and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm, and diminished profits and future earnings.

Our relationships with healthcare providers, physicians, and third-party payors will be subject to applicable anti-kickback, fraud and abuse, anti-bribery and other healthcare laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm, and diminished profits and future earnings.

Healthcare providers, including physicians, and third-party payors play a primary role in the recommendation and prescription of any product candidates that we may develop for which we obtain regulatory approval and marketing approval. Our current and future arrangements with third-party payors, healthcare providers and customers may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we market, sell, and distribute our products for which we obtain regulatory approval. Restrictions under applicable federal and state healthcare laws and regulations, including certain laws and regulations applicable only if we have marketed products, include the following:

- the civil FCA, prohibits knowingly presenting or causing the presentation of a false, fictitious or fraudulent claim for payment to the U.S. government. Actions under the FCA may be brought by the Attorney General or as a qui tam action by a private individual in the name of the government. Violations of the FCA can result in very significant monetary penalties, for each false claim and treble the amount of the government's damages. Manufacturers can be held liable under the FCA even when they do not submit claims directly to government payors if they are deemed to "cause" the submission of false or fraudulent claims;
- the federal Anti-Kickback Statute prohibits, among other things, persons from soliciting, receiving or providing remuneration, directly or indirectly, to induce either the referral of an individual, for an item or service or the purchasing or ordering of a good or service, for which payment may be made under federal healthcare programs such as Medicare and Medicaid. The federal Anti-Kickback Statute has been interpreted to apply to arrangements between manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. A person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. A violation of the federal Anti-Kickback Statute can also form the basis for FCA liability;
- HIPAA, which, in addition to privacy protections applicable to healthcare providers and other entities, prohibits executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;

- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 ("HITECH"), and its implementing regulations, including the final omnibus rule published on January 25, 2013, imposes, among other things, certain requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to "business associates," defined as independent contractors or agents of covered entities that create, receive, maintain, transmit, or obtain, protected health information in connection with providing a service for or on behalf of a covered entity, and their covered subcontractors. HITECH also increased the civil and criminal penalties that may be imposed against covered entities, business associates and possibly other persons, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorney's fees and costs associated with pursuing federal civil actions;
- the FDCA, which among other things, strictly regulates drug marketing, prohibits manufacturers from marketing such products for off-label use and regulates the distribution of samples;
- federal laws that require pharmaceutical manufacturers to report certain calculated product prices to the government or provide certain discounts or rebates to government authorities or private entities, often as a condition of reimbursement under government healthcare programs;
- federal transparency laws, including the federal Physician Payment Sunshine Act created under the Patient Protection and Affordable Care Act as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the ACA), and its implementing regulations, which requires manufacturers of certain drugs, devices, medical supplies, and biologics, among others, to track and disclose payments under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) and other transfers of value they make to U.S. physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members. Effective January 1, 2022, these reporting obligations will extend to include transfers of value made to certain non-physician providers such as physician assistants and nurse practitioners. This information is subsequently made publicly available in a searchable format on a Centers for Medicare & Medicaid Services ("CMS") website. Failure to disclose required information may result in civil monetary penalties for all payments, transfers of value or ownership or investment interests that are not timely, accurately and completely reported in an annual submission. Certain states also mandate implementation of compliance programs, impose restrictions on drug manufacturer marketing practices and/or require the tracking and reporting of gifts, compensation and other remuneration to physicians and/or other healthcare providers; and
- analogous state and foreign laws and regulations, such as state anti-kickback, anti-bribery and false claims laws, which may apply to healthcare items or services that are reimbursed by non-governmental third-party payors, including private insurers.

Some state laws also require pharmaceutical companies to comply with specific compliance standards, restrict financial interactions between pharmaceutical companies and healthcare providers or require pharmaceutical companies to report information related to payments to healthcare providers or marketing expenditures.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Given the breadth of the laws and regulations, limited guidance for certain laws and regulations and evolving government interpretations of the laws and regulations, governmental authorities may possibly conclude that our business practices may not comply with healthcare laws and regulations. If our operations are found to be in violation of any of the laws described above or any other government regulations that apply to us, we may be subject to significant penalties, including civil and criminal penalties, damages, fines, exclusion from participation in government healthcare programs, such as

Medicare and Medicaid, individual imprisonment, and the curtailment or restructuring of our operations, any of which could adversely affect our business, financial condition, results of operations, and prospects.

The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order, or use of medicinal products is prohibited in the European Union. The provision of benefits or advantages to also induce or reward improper performance generally is governed by the national anti-bribery laws of European Union Member States, and the Bribery Act 2010 in the United Kingdom. Infringement of these laws could result in substantial fines and imprisonment. EU Directive 2001/83/EC, which is the EU Directive governing medicinal products for human use, further provides that, where medicinal products are being promoted to persons qualified to prescribe or supply them, no gifts, pecuniary advantages or benefits in kind may be supplied, offered or promised to such persons unless they are inexpensive and relevant to the practice of medicine or pharmacy. This provision has been transposed into the Human Medicines Regulations 2012 and so remains applicable in the United Kingdom despite its departure from the EU.

Payments made to physicians in certain European Union Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician's employer, his or her competent professional organization, and/or the regulatory authorities of the individual European Union Member States. These requirements are provided in the national laws, industry codes, or professional codes of conduct applicable in the European Union Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

Risks Related to Personnel, Operations, and Growth

Our future success depends on our ability to retain our Chief Executive Officer and other key executives and to attract, retain, and motivate qualified personnel.

We are highly dependent on Brian C. Thomas, our Chief Executive Officer as well as the other principal members of our management and scientific teams. Dr. Thomas and such other principal members are engaged "at will," meaning we or they may terminate the relationship at any time. We do not maintain "key person" insurance for any of our executives or other employees. The loss of the services of any of these persons could impede the achievement of our research, development and commercialization objectives. For us to successfully compete and grow, we must recruit, retain, and develop talent who can provide the necessary expertise across a broad spectrum of disciplines. In addition, we must develop, maintain and, as necessary, implement appropriate succession plans to ensure we have the necessary human capital capable of maintaining continuity in our business.

Recruiting and retaining qualified scientific, clinical, manufacturing and sales and marketing personnel will also be critical to our success. In addition, our company-building efforts and establishment of a company culture will also be important to developing an innovative company in a high-evolving area. We may not be able to succeed in these efforts to build Metagenomi as an attractive and exciting place to build a career or to attract and retain these types of personnel on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants and advisors, including our scientific co-founders, may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. We may also encounter problems hiring and retaining the

experienced scientific, quality control and manufacturing personnel needed to manage our manufacturing process, which could result in delays in our production or difficulties in maintaining compliance with applicable regulatory requirements. The inability to recruit, or loss of services of, certain executives, key employees, consultants or advisors, may impede the progress of our research, development and commercialization objectives and have a material adverse effect on our business, financial condition, results of operations and prospects.

We expect to expand our research, development, delivery, manufacturing, commercialization, regulatory, and future sales and marketing capabilities over time, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

We may fail to manage our growth effectively. As of June 30, 2023, we had more than 200 full-time employees, of which 69 have M.D. or Ph.D. degrees. Within our workforce, 176 employees are engaged in research and development and 35 are engaged in business development, finance, legal, and general management and administration. In connection with the growth and advancement of our pipeline and becoming a public company, we expect to increase the number of our employees and the scope of our operations, particularly in the areas of research and clinical development, regulatory affairs and, if any of our future product candidates receive regulatory approval, sales and marketing. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities, and continue to recruit and train additional qualified personnel. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expected expansion of our operations or recruit and train additional qualified personnel. Moreover, the expected physical expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations.

As a growing biotechnology company, we are actively developing our platform technology and pursuing development of future product candidates in many therapeutic areas and across a wide range of diseases. Successfully developing product candidates for and fully understanding the regulatory and manufacturing pathways to all of these therapeutic areas and disease states requires a significant depth of talent, resources and corporate processes in order to allow simultaneous execution across multiple areas. We will need to transition from a company with a research focus to a company capable of conducting clinical trials and ultimately supporting commercial activities if any of our product candidates are approved. We may not be successful in such a transition. Due to our limited resources, we may not be able to effectively manage this simultaneous execution and the expansion of our operations or recruit and train additional qualified personnel. This may result in weaknesses in our infrastructure, give rise to operational mistakes, legal or regulatory compliance failures, loss of business opportunities, loss of employees and reduced productivity among remaining employees. The physical expansion of our operations may lead to significant costs and may divert financial resources from other projects, such as the development of our potential product candidates. If our management is unable to effectively manage our expected development and expansion, our expenses may increase more than expected, our ability to generate or increase our revenue could be reduced and we may not be able to implement our business strategy. Our future financial performance and our ability to compete effectively and commercialize any product candidates we may develop will depend in part on our ability to effectively manage the future development and expansion of our company, and may prevent us from achieving or maintaining profitability. We cannot assure you that we will be able to compete effectively in the future against existing or new competitors, and our failure to do so could harm our business, financial condition, and results of operations.

Disruptions at the FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire, retain or deploy key leadership and other personnel, or otherwise prevent new or modified products from being developed, approved, or commercialized in a timely manner or at all, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, statutory, regulatory, and policy changes, the FDA's ability to hire and retain key personnel and accept the payment of user fees, and other events that may otherwise affect the FDA's ability to perform routine functions. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable. Disruptions at the FDA and other agencies may also slow the time necessary for biologics or modifications to approved biologics to be reviewed and/or approved by necessary government agencies, which would adversely affect our business.

Risks Related to Our Intellectual Property

Our commercial success depends on our ability to obtain, maintain, enforce, and otherwise protect our intellectual property and proprietary technology, and if the scope of the intellectual property protection obtained is not sufficiently broad, our competitors or other third parties could develop and commercialize products and product candidates similar to ours and our ability to successfully develop and commercialize our genome editing systems may be adversely affected.

Our commercial success depends, in large part, on our ability to obtain and maintain intellectual property rights protection through patents, trademarks, and trade secrets in the United States and other countries with respect to our proprietary genome editing systems. If we do not adequately protect our intellectual property rights, competitors or other third parties may be able to erode, negate or preempt any competitive advantage we may have, which could harm our business and ability to achieve profitability. To protect our proprietary position, we have filed patent applications and may file other patent applications in the United States or abroad related to our genome editing systems that are important to our business; we may also license or purchase patents or patent applications filed by others. The patent application process is expensive, time-consuming and complex. We may not be able to file, prosecute, maintain, enforce or license all necessary or desirable patent applications at a reasonable cost or in a timely manner.

We may not be able to obtain patents on certain inventions if those inventions are publicly disclosed prior to our filing a patent application covering them. We enter into nondisclosure and confidentiality agreements with parties who have access to confidential information, including confidential information regarding inventions not yet disclosed in patent applications. We cannot guarantee that any of these parties will not breach these confidentiality agreements and publicly disclose any of our inventions before a patent application is filed covering such inventions. If such confidential information is publicly disclosed, we may not be able to successfully patent it and consequently, we may not be able to prevent third parties from using such inventions.

If the scope of the patent protection we obtain is not sufficiently broad, we may not be able to prevent others from developing and commercializing technology and products similar or identical to ours. The degree of patent protection we require to successfully compete in the marketplace may be unavailable or severely limited in some cases and may not adequately protect our rights or permit us to gain or keep any competitive advantage. We cannot provide any assurances that any of our patents have, or that any of our pending owned patent applications that mature into issued patents will include claims with a scope sufficient to protect our proprietary genome editing systems or otherwise provide any competitive advantage. Other parties have developed or may develop technologies that may be related or competitive with our approach, and may have

filed or may file patent applications and may have been issued or may be issued patents with claims that overlap or conflict with our patent portfolio, either by claiming the same compounds, formulations or methods or by claiming subject matter that could dominate our patent position. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. Furthermore, patents have a limited lifespan. In the United States, the natural expiration of a patent is generally twenty years after it is filed. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. Given the amount of time required for the development, testing and regulatory review of new genome editing systems, patents protecting such genome editing systems might expire before or shortly after such genome editing systems are commercialized. As a result, our patent portfolio may not provide us with adequate and continuing patent protection sufficient to exclude others from commercializing products similar or identical to ours.

Even if they are unchallenged, our owned patents and pending patent applications, if issued, may not provide us with any meaningful protection or prevent competitors from designing around our patent claims to circumvent our patent portfolio by developing similar or alternative genome editing systems in a non-infringing manner. For example, a third party may develop a genome editing system that provides benefits similar to our genome editing systems but falls outside the scope of our patent protection or license rights. If the patent protection provided by the patent and patent applications we hold or pursue with respect to our genome editing systems is not sufficiently broad to impede such competition, our ability to successfully commercialize our product genome editing systems could be negatively affected, which would harm our business.

We, or any future partners, collaborators, or licensees, may fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. Therefore, we may miss potential opportunities to strengthen our patent position.

It is possible that defects of form in the preparation or filing of our patent portfolio may exist, or may arise in the future, for example with respect to proper priority claims, inventorship, claim scope, or requests for patent term adjustments. If we or our partners, collaborators, or licensees whether current or future, fail to establish, maintain or protect such patents and other intellectual property rights, such rights may be reduced or eliminated. If our partners, collaborators, or licensees are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised. If there are material defects in the form, preparation, prosecution, or enforcement of our patent portfolio, such patents may be invalid and/or unenforceable, and such applications may never result in valid, enforceable patents. Periodic maintenance fees, renewal fees, annuity fees and various other government fees on patents and/or applications will be due to be paid to the U.S. Patent and Trademark Office (“USPTO”) and various government patent agencies outside of the United States over the lifetime of our owned or licensed patents and patent applications. We rely on our outside counsel or our licensing partners to pay these fees due to U.S. and non-U.S. patent agencies. The USPTO and various non-U.S. government patent agencies require compliance with several procedural, documentary, fee payment and other similar provisions during the patent application process. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business.

The patent position of biotechnology and pharmaceutical companies carries uncertainty. In addition, the determination of patent rights with respect to genome editing technologies commonly involves complex legal and factual questions, which are dependent upon the current legal and intellectual property context, extant legal precedent and interpretations of the law by individuals. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are characterized by uncertainty.

Pending patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications. Assuming the other requirements for

patentability are met, currently, the first to file a patent application is generally entitled to the patent. However, prior to March 16, 2013, in the United States, the first to invent was entitled to the patent. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are not published until 18 months after filing, or in some cases not at all. Therefore, we cannot be certain that we were the first to make the inventions claimed in our patent portfolio, or that we were the first to file for patent protection of such inventions. If third parties have filed prior patent applications on inventions claimed in our patent portfolio that were filed on or before March 15, 2013, an interference proceeding in the United States can be initiated by such third parties to determine who was the first to invent any of the subject matter covered by our patent portfolio. If third parties have filed such prior applications after March 15, 2013, a derivation proceeding in the United States can be initiated by such third parties to determine whether our invention was derived from theirs.

Moreover, because the issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, our patents may be challenged in the courts or patent offices in the United States and abroad. There is no assurance that all the potentially relevant prior art relating to our patent portfolio has been found. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing or, in some cases, not at all. Therefore, we cannot know with certainty whether we were the first to make the inventions claimed in our patent portfolio, or that we were the first to file for patent protection of such inventions. If such prior art exists, it may be used to invalidate a patent, or may prevent a patent from issuing from a pending patent application. For example, such patent filings may be subject to a third-party submission of prior art to the USPTO, or to other patent offices around the world. Alternately or additionally, we may become involved in post-grant review procedures, oppositions, derivation proceedings, ex parte reexaminations, inter partes review, supplemental examinations, or interference proceedings or challenges before the USPTO or in district court in the United States, or similar proceedings in various foreign jurisdictions, including both national and regional, challenging patents or patent applications in which we have rights, including patents on which we rely to protect our business. An adverse determination in any such challenges may result in loss of the patent or claims in the patent portfolio being narrowed, invalidated or held unenforceable, in whole or in part, or in denial of the patent application or loss or reduction in the scope of one or more claims of the patent portfolio, any of which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and products.

Pending and future patent applications may not result in patents being issued that protect our business, in whole or in part, or which effectively prevent others from commercializing competitive products. Competitors may also be able to design around our patents. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. In addition, the laws of foreign countries may not protect our rights to the same extent or in the same manner as the laws of the United States. For example, patent laws in various jurisdictions, including jurisdiction covering significant commercial markets, such as the European Patent Office, China, and Japan, restrict the patentability of methods of treatment of the human body more than United States law does. If these developments were to occur, they could have a material adverse effect on our ability to generate revenue.

The patent application process is subject to numerous risks and uncertainties, and there can be no assurance that we or any of our future development partners will be successful in protecting our genome editing systems by obtaining and defending patents. These risks and uncertainties include the following:

- the USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process. There are situations in which noncompliance, whether intentional or not, can result in abandonment or lapse of a patent or patent

application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, competitors might be able to enter the market earlier than would otherwise have been the case;

- patent applications may not result in any patents being issued;
- Company-owned or in-licensed patents that have been issued or may be issued in the future may be challenged, invalidated, modified, revoked, circumvented, found to be unenforceable or otherwise may not provide any competitive advantage;
- our competitors, many of whom have substantially greater resources and many of whom have made significant investments in competing technologies, may seek or may have already obtained patents that will limit, interfere with or eliminate our ability to make, use, and sell our genome editing systems;
- there may be significant pressure on the U.S. government and international governmental bodies to limit the scope of patent protection both inside and outside the United States for disease treatments that prove successful, as a matter of public policy regarding worldwide health concerns;
- countries other than the United States may have patent laws less favorable to patentees than those upheld by U.S. courts, allowing foreign competitors a better opportunity to create, develop and market competing products; and
- countries other than the U.S. may, under certain circumstances, force us to grant a license under our patents to a competitor, thus allowing the competitor to compete with us in that jurisdiction or forcing us to lower the price of our drug in that jurisdiction.

Issued patents that we have or may obtain or license may not provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner. Our competitors may also seek approval to market their own products similar to or otherwise competitive with our products. In these circumstances, we may need to defend or assert our patents, or both, including by filing lawsuits alleging patent infringement. In any of these types of proceedings, a court or other agency with jurisdiction may find our patents invalid or unenforceable, or that our competitors do not infringe our patents. Thus, even if we have valid and enforceable patents, these patents still may not provide protection against competing products or processes sufficient to achieve our business objectives.

We maintain certain information as company trade secrets. This information may relate to inventions that are not patentable or not optimally protected with patents. We use commercially acceptable practices to protect this information, including, for example, limiting access to the information and requiring passwords for our computers. Additionally, we execute confidentiality agreements with any third parties to whom we may provide access to the information and with our employees, consultants, scientific advisors, collaborators, vendors, contractors, and advisors. We cannot provide any assurances that all such agreements have been duly executed, and third parties may still obtain this information or may come upon this or similar information independently. It is possible that technology relevant to our business will be independently developed by a person who is not a party to such a confidentiality or invention assignment agreement. If any of our trade secrets were to be independently developed by a competitor or other third party, we would have no right to prevent such competitor or third party, or those to whom they communicate such independently developed information, from using that information to compete with us. We may not be able to prevent the unauthorized disclosure or use of our technical knowledge or trade secrets by contract manufacturers, consultants, collaborators, vendors, advisors, former employees and current employees. Monitoring unauthorized uses and disclosures is difficult and we do not know whether the steps we have taken to protect our proprietary technologies will be effective. Furthermore, if the parties to our confidentiality agreements

breach or violate the terms of these agreements, we may not have adequate remedies for any such breach or violation, and we could lose our trade secrets as a consequence of such breaches or violations. Our trade secrets could otherwise become known or be independently discovered by our competitors. Additionally, if the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating our trade secrets. If any of these events occurs or if we otherwise lose protection for our trade secrets, our business, financial condition, results of operation and prospects may be materially and adversely harmed.

It is difficult and costly to protect our intellectual property and our proprietary technologies, and we may not be able to ensure their protection.

Our commercial success will depend in part on obtaining and maintaining patent protection and trade secret protection for our proprietary genome editing systems, as well as on successfully defending these patents against potential third-party challenges. Our ability to protect our genome editing systems from unauthorized making, using, selling, offering to sell or importing by third parties is dependent on the extent to which we have rights under valid and enforceable patents that cover these activities.

The patent positions of pharmaceutical, biotechnology and other life sciences companies can be highly uncertain and involve complex legal and factual questions for which important legal principles remain unresolved and have in recent years been the subject of much litigation. Changes in either the patent laws or in interpretations of patent laws in the United States and other countries may diminish the value of our intellectual property. Over the past decade, U.S. federal courts have increasingly invalidated pharmaceutical and biotechnology patents during litigation often based on changing interpretations of patent law. Further, the determination that a patent application or patent claim meets all the requirements for patentability is a subjective determination based on the application of law and jurisprudence. The ultimate determination by the USPTO or by a court or other trier of fact in the United States, or corresponding foreign national patent offices or courts, on whether a claim meets all requirements of patentability cannot be assured. Although we have conducted searches for third-party publications, patents and other information that may affect the patentability of claims in our patent portfolio, we cannot be certain that all relevant information has been identified. Accordingly, we cannot predict the breadth of claims that may be allowed or enforced in our own patent portfolio.

We cannot provide assurances that any of our patent applications will be found to be patentable, including over our own prior art publications or patent literature, or will issue as patents. Neither can we make assurances as to the scope of any claims that may issue from our pending and future patent applications nor to the outcome of any proceedings by any potential third parties that could challenge the patentability, validity or enforceability of our patent portfolio in the United States or foreign jurisdictions. Any such challenge, if successful, could limit patent protection for our genome editing systems and/or materially harm our business.

In addition to challenges during litigation, third parties can challenge the validity of our patents in the United States using post-grant review and inter partes review proceedings, which some third parties have been using to cause the cancellation of selected or all claims of issued patents of competitors. For a patent filed March 16, 2013 or later, a petition for post-grant review can be filed by a third party in a nine-month window from issuance of the patent. A petition for inter partes review can be filed immediately following the issuance of a patent if the patent has an effective filing date prior to March 16, 2013. A petition for inter partes review can be filed after the nine-month period for filing a post-grant review petition has expired for a patent with an effective filing date of March 16, 2013 or later. Post-grant review proceedings can be brought on any ground of invalidity, whereas inter partes review proceedings can only raise an invalidity challenge based on published prior art and patents. These adversarial actions at the USPTO review patent claims without the presumption of validity afforded to U.S. patents in lawsuits in U.S. federal courts and use a lower burden of proof than used in litigation in U.S. federal courts. Therefore, it is generally

considered easier for a competitor or third party to have a U.S. patent invalidated in a USPTO post-grant review or inter partes review proceeding than invalidated in a litigation in a U.S. federal court. If any of our patents are challenged by a third party in such a USPTO proceeding, there is no guarantee that we will be successful in defending the patent, which may result in a loss of the challenged patent right to us.

The degree of future protection for our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. For example:

- we may not be able to generate sufficient data to support full patent applications that protect the entire breadth of developments in one or more of our programs;
- it is possible that one or more of our pending patent applications will not become an issued patent or, if issued, that the patent(s) claims will have sufficient scope to protect our technology, provide us with commercially viable patent protection or provide us with any competitive advantages;
- if our pending applications issue as patents, they may be challenged by third parties as invalid or unenforceable under United States or foreign laws;
- we may not successfully commercialize our genome editing systems, if approved, before our relevant patents expire;
- we may not be the first to make the inventions covered by our patent portfolio; or
- we may not develop additional proprietary technologies or genome editing systems that are separately patentable.

In addition, to the extent that we are unable to obtain and maintain patent protection for our genome editing systems, or in the event that such patent protection expires, it may no longer be cost-effective to extend our portfolio by pursuing additional development of any of our genome editing systems for follow-on indications.

Patent terms may be inadequate to protect our competitive position on our products for an adequate amount of time.

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. The patent term of a U.S. patent may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the United States Patent and Trademark Office in granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier-filed patent.

Various extensions may be available, but the life of a patent, and the protection it affords, is limited. Given the amount of time required for the development, testing and regulatory review of new genome editing systems, patents protecting such genome editing systems might expire before or shortly after such genome editing systems are commercialized.

In the United States, the Drug Price Competition and Patent Term Restoration Act of 1984 permits a Patent Term Extension (“PTE”) of up to five years beyond the normal expiration of the patent to compensate patent owners for loss of enforceable patent term due to the lengthy regulatory approval process. A PTE grant cannot extend the remaining term of a patent beyond a total of 14 years from the date of the product approval. Further, PTE may only be applied once per product, and only with respect to an approved indication—in other words, only one patent (for example, covering the product itself, an approved use of said product, or a method of manufacturing said product) can be extended by PTE. We anticipate applying for PTE in the United States. Similar extensions may be available in other countries where we are prosecuting patents and we likewise anticipate applying for such extensions.

The granting of such patent term extensions is not guaranteed and is subject to numerous requirements. We might not be granted an extension because of, for example, failure to apply within applicable periods, failure to apply prior to the expiration of relevant patents or otherwise failure to satisfy any of the numerous applicable requirements. In addition, to the extent we wish to pursue patent term extension based on a patent that we in-license from a third party, we would need the cooperation of that third party. Moreover, the applicable authorities, including the FDA and the USPTO in the United States, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. If this occurs, our competitors may be able to obtain approval of competing products following our patent expiration by referencing our clinical and preclinical data and launch their product earlier than might otherwise be the case. If this were to occur, it could have a material adverse effect on our ability to generate revenue.

Changes in the interpretation of patent law in the United States and other jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our products.

The United States Congress is responsible for passing laws establishing patentability standards. As with any laws, implementation is left to federal agencies and the federal courts based on their interpretations of the laws. Interpretation of patent standards can vary significantly within the USPTO, and across the various federal courts, including the U.S. Supreme Court. Recently, the Supreme Court has ruled on several patent cases, generally limiting the types of inventions that can be patented. Further, there are open questions regarding interpretation of patentability standards that the Supreme Court has yet to decisively address. Absent clear guidance from the Supreme Court, the USPTO has become increasingly conservative in its interpretation of patent laws and standards.

In addition to increasing uncertainty with regard to our ability to obtain patents in the future, the legal landscape in the U.S. has created uncertainty with respect to the value of patents. Depending on any actions by Congress, and future decisions by the lower federal courts and the U.S. Supreme Court, along with interpretations by the USPTO, the laws and regulations governing patents could change in unpredictable ways and could weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

The U.S. Supreme Court has ruled on several patent cases in recent years; these cases often narrow the scope of patent protection available to inventions in the biotechnology and pharmaceutical spaces. For example, in *Association for Molecular Pathology v. Myriad Genetics, Inc.* (“*Myriad*”), the Supreme Court ruled that a “naturally occurring DNA segment is a product of nature and not patent eligible merely because it has been isolated,” and invalidated Myriad Genetics’ claims on the isolated BRCA1 and BRCA2 genes. Certain claims of our patent portfolio relate to genome editing systems. While we believe that our proprietary genome editing systems involve significant human intervention, components of the system, such as the isolated nucleases with no modifications, are derived from naturally-occurring products. To the extent that such claims are deemed to be directed to natural products, or to lack an inventive concept above and beyond an isolated natural product, a court may decide the claims are directed to patent-ineligible subject matter and are invalid. The application of *Myriad* to biotechnology inventions has continued to develop and may continue to change over time. Subsequent rulings in cases or guidance or procedures issued by the USPTO relating to patent eligibility may have a negative impact on our business.

In *Amgen Inc. v. Sanofi* (“*Amgen*”), the U.S. Supreme Court held that certain of Amgen’s patent claims defined a class of antibodies by their function of binding to a particular antigen. The U.S. Supreme Court further wrote that because the patent claims defined the claimed class of antibodies only by their function of binding to a particular antigen, a skilled artisan would have to use significant trial and error to identify and make all of the molecules in that class. The U.S. Supreme Court ultimately held that Amgen failed to properly enable its patent

claims. Certain claims of our patent portfolio relate to broad classes of gene editors. To the extent that a court finds that the skilled artisan would need significant trial and error to identify all the gene editors in that class, the court may find the claims invalid under *Amgen*. Depending on future actions by the U.S. Congress, the U.S. courts, the USPTO and the relevant law-making bodies in other countries, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

Further, a new court system recently became operational in the European Union. The Unified Patent Court ("UPC") began accepting patent cases on June 1, 2023. The UPC is a common patent court with jurisdiction over patent infringement and revocation proceedings effective for multiple member states of the European Union. The broad geographic reach of the UPC could enable third parties to seek revocation of any of our European patents in a single proceeding at the UPC rather than through multiple proceedings in each of the individual European Union member states in which the European patent is validated. Under the UPC, a successful revocation proceeding for a European Patent under the UPC would result in loss of patent protection in those European Union countries. Accordingly, a single proceeding under the UPC could result in the partial or complete loss of patent protection in numerous European Union countries. Such a loss of patent protection could have a material adverse impact on our business and our ability to commercialize our technology and product candidates and, resultantly, on our business, financial condition, prospects and results of operations. Moreover, the controlling laws and regulations of the UPC will develop over time and we cannot predict what the outcomes of cases tried before the UPC will be. The case law of the UPC may adversely affect our ability to enforce or defend the validity of our European patents. Patent owners have the option to opt-out their European Patents from the jurisdiction of the UPC, defaulting to pre-UPC enforcement mechanisms. We have decided to opt out certain European patents and patent applications from the UPC. However, if certain formalities and requirements are not met, our European patents and patent applications could be subject to the jurisdiction of the UPC. We cannot be certain that our European patents and patent applications will avoid falling under the jurisdiction of the UPC, if we decide to opt out of the UPC.

We may not be able to seek or obtain patent protection throughout the world or enforce such patent protection once obtained.

Filing, prosecuting, enforcing, and defending patents protecting our genome editing systems in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. The requirements for patentability may differ in certain countries, particularly in developing countries; thus, even in countries where we do pursue patent protection, there can be no assurance that any patents will issue with claims that cover our products.

Moreover, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws. Additionally, laws of some countries outside of the United States and Europe do not afford intellectual property protection to the same extent as the laws of the United States and Europe. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. This could make it difficult for us to stop the infringement of our patents or the misappropriation of our other intellectual property rights. For example, many foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties. Consequently, we may not be able to prevent third parties from practicing our inventions in certain countries outside the United States and Europe or from selling or importing products made from our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop and market their own products and, further, may export otherwise infringing products to territories where we have patent protection, if our ability to enforce our patents to stop infringing activities is inadequate. These products may compete with our products, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Proceedings to enforce our patent rights, whether successful or not, could result in substantial costs and divert our efforts and resources from other aspects of our business. Further, such proceedings could put our patents at risk of being invalidated, held unenforceable or interpreted narrowly; put our pending patent applications at risk of not issuing; and provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Furthermore, while we intend to protect our intellectual property rights in major markets for our products, we cannot ensure that we will be able to initiate or maintain similar efforts in all jurisdictions in which we may wish to market our products, if approved. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate.

In order to protect our competitive position around our future product candidates, we may become involved in lawsuits to enforce our patents or other intellectual property, which could be expensive, time consuming and unsuccessful and which may result in our patents being found invalid or unenforceable.

Competitors may seek to commercialize competitive products to our genome editing systems. In order to protect our competitive position, we may become involved in lawsuits asserting infringement of our patents, or misappropriation or other violations of other of our intellectual property rights. Litigation is expensive and time consuming and would likely divert the time and attention of our management and scientific personnel. There can be no assurance that we will have sufficient financial or other resources to file and pursue such infringement claims, which typically last for years before they are concluded. Even if we ultimately prevail in such claims, the monetary cost of such litigation and the diversion of the attention of our management and scientific personnel could outweigh any benefit we receive as a result of the proceedings.

If we file a patent infringement lawsuit against a perceived infringer, such a lawsuit could provoke the defendant to counterclaim that we infringe their patents and/or that our patents are invalid and/or unenforceable. In patent litigation in the United States, it is commonplace for a defendant to counterclaim alleging invalidity and/or unenforceability. In any patent litigation there is a risk that a court will decide that the asserted patents are invalid or unenforceable, in whole or in part, and that we do not have the right to stop the defendant from using the invention at issue. With respect to a counterclaim of invalidity, we cannot be certain that there is no invalidating prior art of which we and the patent examiner were unaware during prosecution. There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent claims narrowly or decide that we do not have the right to stop the other party from using the invention at issue on the grounds that our patent claims do not cover the invention. If any of our patents are found invalid or unenforceable, or construed narrowly, our ability to stop the other party from launching a competitive product would be materially impaired. Further, such adverse outcomes could limit our ability to assert those patents against future competitors. Loss of patent protection would have a material adverse impact on our business.

Even if we establish infringement of any of our patents by a competitive product, a court may decide not to grant an injunction against further infringing activity, thus allowing the competitive product to continue to be marketed by the competitor. It is difficult to obtain an injunction in U.S. litigation and a court could decide that the competitor should instead pay us a “reasonable royalty” as determined by the court, and/or other monetary damages. A reasonable royalty or other monetary damages may or may not be an adequate remedy. Loss of exclusivity and/or competition from a related product would have a material adverse impact on our business.

Litigation often involves significant amounts of public disclosures. Such disclosures could have a materially adverse impact on our competitive position or our stock prices. During any litigation we would be required to produce voluminous records related to our patents and our research and development activities in a process called discovery. The discovery process may result in the disclosure of some of our confidential information. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could adversely affect the price of our common shares.

Litigation is inherently expensive, and the outcome is often uncertain. Any litigation likely would substantially increase our operating losses and reduce our resources available for development activities. Further, we may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. As a result, we may conclude that even if a competitor is infringing any of our patents, the risk-adjusted cost of bringing and enforcing such a claim or action may be too high or not in the best interest of our company or our stockholders. In such cases, we may decide that the more prudent course of action is to simply monitor the situation or initiate or seek some other non-litigious action or solution.

If in the future, we in-license any patent rights, we may not have the right to file a lawsuit for infringement and may have to rely on a licensor to enforce these rights for us. If we are not able to directly assert our licensed patent rights against infringers or if a licensor does not vigorously prosecute any infringement claims on our behalf, we may have difficulty competing in certain markets where such potential infringers conduct their business, and our commercialization efforts may suffer as a result.

Concurrently with an infringement litigation, third parties may also be able to challenge the validity of our patents before administrative bodies in the United States or abroad. Such mechanisms include re-examination, post grant review and equivalent proceedings in foreign jurisdictions, e.g., opposition proceedings. Such proceedings could result in revocation or amendment of our patents in such a way that they no longer cover our products, potentially negatively impacting any concurrent litigation.

If we are sued for infringing intellectual property rights of third parties, such litigation could be costly and time consuming and could prevent or delay us from developing or commercializing our genome editing systems.

Our commercial success depends, in part, on our ability to develop, manufacture, market and sell our genome editing systems without infringing, misappropriating or otherwise violating the intellectual property and other proprietary rights of third parties. However, our research, development and commercialization activities may be subject to claims that we infringe, misappropriate or otherwise violate patents or other intellectual property rights owned or controlled by third parties. Third parties may have U.S. and non-U.S. issued patents and pending patent applications relating to compounds, methods of manufacturing compounds and/or methods of use for the treatment of the disease indications for which we are developing our genome editing systems. If any third-party patents or patent applications are found to cover our genome editing systems, or their methods of use or manufacture, we may not be free to manufacture or market such genome editing systems as planned without obtaining a license, which may not be available on commercially reasonable terms, or at all.

There is a substantial amount of intellectual property litigation in the biotechnology and pharmaceutical industries, and we may become party to, or threatened with, litigation or other adversarial proceedings regarding intellectual property rights with respect to our genome editing systems, including patent infringement lawsuits in the U.S. or abroad. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the composition, use or manufacture of our genome editing systems. Third parties may assert infringement claims against us based on existing patents that they own or in-license or patents that may grant to them (or which they may in-license) in the future, regardless of the merit of such patents or infringement claims. If our defenses to such assertions of infringement were unsuccessful, we could be liable for a court-determined reasonable royalty on our existing sales and further damages to the patent owner (or licensee), such as lost profits. Such royalties and damages could be significant. If we are found to have willfully infringed the claims of a third party's patent, the third party could be awarded treble damages and attorney's fees. Further, unless we obtain a license to such patent, we may be precluded from commercializing the infringing genome editing system. Any of the aforementioned could have a material adverse effect on our business, financial condition, results of operations and prospects.

While we perform periodic searches for relevant patents and patent applications with respect to our genome editing systems, including Cas proteins and therapeutic applications, we cannot guarantee the completeness or thoroughness of any of our patent searches or analyses including, but not limited to, the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, nor can we be certain that we have identified each and every patent and pending application in the United States and abroad that is relevant to or necessary for the commercialization of any of our genome editing systems in any jurisdiction. Because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that any of our genome editing systems may be accused of infringing. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. Accordingly, third parties may assert infringement claims against us based on intellectual property rights that exist now or arise in the future. The outcome of intellectual property litigation is subject to uncertainties that cannot be adequately quantified in advance. The pharmaceutical and biotechnology industries have produced a significant number of patents, and it may not always be clear to industry participants, including us, which patents cover various types of products or methods of use or manufacture. The scope of protection afforded by a patent is subject to interpretation by the courts, and the interpretation is not always uniform. If we were sued for patent infringement, we would need to demonstrate that the relevant product or methods of using the product either do not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do this. Proving invalidity is difficult. For example, in the United States, proving invalidity requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents. Even if we are successful in these proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel could be diverted in pursuing these proceedings, which could significantly harm our business and operating results. In addition, parties making claims against us may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources, and we may not have sufficient resources to bring these actions to a successful conclusion.

Numerous third-party U.S. and foreign issued patents and pending patent applications exist in the fields in which we are developing genome editing systems. Our genome editing systems make use of CRISPR-based technology, which is a field that is highly active for patent filings and complex litigation. As of June 2019, it was reported that approximately 2072 patent families worldwide related to CRISPR genome editing inventions and their uses. That number has continued to increase. The extensive patent filings related to CRISPR make it difficult for us to assess the full extent of relevant patents and pending applications that may cover our genome editing systems and their use or manufacture. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our genome editing systems. We are aware of multiple patents and patent applications directed to CRISPR technologies, Cas molecules, and their uses in genome editing. For example, we are aware of patent portfolios related to CRISPR/Cas genome editing systems that are owned or co-owned by Sigma Aldrich, Stanford University and Agilent Technologies, the Broad Institute and/or Harvard University and/or the Massachusetts Institute of Technology (“MIT”), and Targetgene Biotechnologies. We are also aware of patent portfolios related to base editing systems that are owned or co-owned by Beam Therapeutics, the Broad Institute and/or Harvard University and/or MIT, the University of California, Duke University, Kobe University, the Max Planck Institute, Wageningen University, and Bioray Laboratories. We are also aware of patent portfolios related to CRISPR associated transposase/retro-transposase (“CAST”) systems that are owned or co-owned by the Broad Institute, Arbor Biotechnologies, and the University of Rochester.

Intellectual property litigation is common in the biotechnology space and multiple parties have engaged in litigation to protect and enforce their CRISPR/Cas related patent estates. For example, patents and patent applications directed to catalytically-active Cas9 systems have been the subject of extensive adversarial patent
office proceedings. These proceedings include U.S. Patent and Trademark Office Patent Trial and Appeal Board

("PTAB") proceedings involving the Broad Institute and the University of California regarding the priority of inventions with respect to certain U.S. patents and patent applications each owns directed to catalytically-active Cas9. Our genome editing technologies do not use catalytically-active Cas9 and we are not aware of any third-party patents or patent applications that we believe cover our Cas-related genome editing system and proprietary technology. However, we may not have identified all relevant third-party patents and patent applications. Therefore, there can be no assurance that third parties will not assert patents against us in the future or that our patents and patent applications will not be challenged. Any litigation brought against us or our patents or patent applications, even if meritless, could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we are found to infringe, misappropriate or otherwise violate a third party's intellectual property rights, we could be forced, including by court order, to cease developing, manufacturing or commercializing the infringing product. Alternatively, we may be required to obtain a license from such third party in order to use the infringing technology and continue developing, manufacturing or marketing the infringing product. If we were required to obtain a license to continue to manufacture or market the affected product, we may be required to pay substantial royalties or grant cross-licenses to our patents. Even if we were able to obtain a license, it could be nonexclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us. We cannot assure you that any such license will be available on acceptable terms, if at all. Ultimately, we could be prevented from commercializing a product, or be forced to cease some aspect of our business operations as a result of claims of patent infringement or violation of other intellectual property rights, Further, the outcome of intellectual property litigation is subject to uncertainties that cannot be adequately quantified in advance, including the demeanor and credibility of witnesses and the identity of any adverse party. This is especially true in intellectual property cases that may turn on the testimony of experts as to technical facts upon which experts may reasonably disagree. Furthermore, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us; alternatively or additionally it could include terms that impede or destroy our ability to compete successfully in the commercial marketplace. In addition, we could be found liable for significant monetary damages, including treble damages and attorneys' fees if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing a product or force us to cease some of our business operations, which could harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or administrative proceedings, there is a risk that some of our confidential information could be compromised by disclosure. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have material adverse effect on our ability to raise additional funds or otherwise have a material adverse effect on our business, results of operations, financial condition and prospects.

Others may challenge inventorship or claim an ownership interest in our intellectual property which could expose it to litigation and have a significant adverse effect on its prospects.

Determinations of inventorship can be subjective. While we undertake to accurately identify correct inventorship of inventions made on our behalf by our employees, consultants and contractors, an employee, consultant or contractor may disagree with our determination of inventorship and assert a claim of inventorship. Any disagreement over inventorship could result in our being forced to defend our determination of inventorship in a legal action which could result in substantial costs and be a distraction to our senior management and scientific personnel.

While we typically require employees, consultants and contractors who may develop intellectual property on our behalf to execute agreements assigning such intellectual property to us, we may be unsuccessful in obtaining

execution of assignment agreements with each party who in fact develops intellectual property that we regard as our own. Moreover, even when we obtain agreements assigning intellectual property to us, the assignment of intellectual property rights may not be self-executing or the assignment agreements may be breached. In either case, we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Furthermore, individuals executing agreements with us may have preexisting or competing obligations to a third party, such as an academic institution, and thus an agreement with us may be ineffective in perfecting ownership of inventions developed by that individual. If we are unsuccessful in obtaining assignment agreements from an employee, consultant or contractor who develops intellectual property on our behalf, the employee, consultant or contractor may later claim ownership of the invention. Any disagreement over ownership of intellectual property could result in our losing ownership, or exclusive ownership, of the contested intellectual property, paying monetary damages and/or being enjoined from clinical testing, manufacturing and marketing of the affected product candidate(s). Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and be a distraction to our senior management and scientific personnel.

We may be subject to claims by third parties asserting that our employees or we have misappropriated their intellectual property or claiming ownership of what we regard as our own intellectual property.

Many of our current and former employees and our licensors' current and former employees, including our senior management, were previously employed at universities or at other biotechnology or pharmaceutical companies, including some which may be competitors or potential competitors. Although we take commercially reasonable steps to ensure that our employees do not use the proprietary information, know-how or trade secrets of others in their work for us, including incorporating such intellectual property into our genome editing systems, we may be subject to claims that we or these employees have misappropriated the intellectual property of a third party.

If we or any of our employees are accused of misappropriating the proprietary information, know-how or trade secrets of a third party, we may be forced to defend such claims in litigation. If we are found to have misappropriated the intellectual property rights of a third party, we may be forced to pay monetary damages, sustain reputational damage, lose key personnel, or lose valuable intellectual property rights. Further, it may become necessary for us to obtain a license from such third party to commercialize any of our genome editing systems. Such a license may not be available on commercially reasonable terms or at all. Any of the aforementioned could materially affect the commercialization of any of our genome editing systems. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

We consider proprietary trade secrets or confidential know-how and unpatented know-how to be important to our business. We may rely on trade secrets or confidential know-how to protect our technology, especially where patent protection is believed by us to be of limited value. We expect to rely on third parties for future manufacturing of our genome editing systems, and any future genome editing systems. We also expect to collaborate with third parties on the development of our genome editing systems and any future genome editing systems. As a result of the aforementioned collaborations, we must, at times, share trade secrets with our collaborators. We also conduct joint research and development programs that may require us to share trade secrets under the terms of our research and development partnerships or similar agreements.

Trade secrets or confidential know-how can be difficult to maintain as confidential. To protect this type of information against disclosure or appropriation by competitors, our policy is to require our employees, consultants, contractors

and advisors to enter into confidentiality agreements and, if applicable, material transfer agreements, consulting agreements or other similar agreements with us prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, including our trade secrets. However, current or former employees, consultants, contractors and advisers may unintentionally or willfully disclose our confidential information to competitors, and confidentiality agreements may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. The need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure would impair our competitive position and may have an adverse effect on our business and results of operations. Enforcing a claim that a third party obtained illegally and is using trade secrets or confidential know-how is expensive, time consuming and unpredictable. The enforceability of confidentiality agreements may vary from jurisdiction to jurisdiction.

In addition, these agreements typically restrict the ability of our advisors, employees, third-party contractors and consultants to publish data potentially relating to our trade secrets, although our agreements may contain certain limited publication rights. Despite our efforts to protect our trade secrets, our competitors may discover our trade secrets, either through breach of our agreements with third parties, independent development or publication of information by any of our third-party collaborators. A competitor's discovery of our trade secrets would impair our competitive position and have an adverse impact on our business.

We may need to acquire or license additional intellectual property from third parties, and such licenses may not be available or may not be available on commercially reasonable terms.

A third party may hold intellectual property, including patent rights that are important or necessary to the development of our genome editing systems. It may be necessary for us to use the patented or proprietary technology of one or more third parties to commercialize our current and future product candidates.

The licensing and acquisition of third-party intellectual property rights is a competitive area, and a number of more established companies may pursue strategies to license or acquire third-party intellectual property rights that we may consider attractive. These established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development. If we are unable to acquire such intellectual property outright, or obtain licenses to such intellectual property from such third parties when needed or on commercially reasonable terms, our ability to commercialize our genome editing systems, if approved, would likely be delayed or we may have to abandon development of that product genome editing systems or program and our business and financial condition could suffer.

If we in-license additional genome editing systems in the future, we might become dependent on proprietary rights from third parties with respect to those genome editing systems. Any termination of such licenses could result in the loss of significant rights and would cause material adverse harm to our ability to develop and commercialize any genome editing systems subject to such licenses. Even if we are able to in-license any such necessary intellectual property, it could be on nonexclusive terms, including with respect to the use, field or territory of the licensed intellectual property, thereby giving our competitors and other third parties access to the same intellectual property licensed to us. In-licensing IP rights could require us to make substantial licensing and royalty payments. Patents licensed to us could be put at risk of being invalidated or interpreted narrowly in litigation filed by or against our licensors or another licensee or in administrative proceedings. If any in-licensed patents are invalidated or held unenforceable, we may not be able to prevent competitors or other third parties from developing and commercializing competitive products.

We may not have the right to control the prosecution, maintenance, enforcement or defense of patents and patent applications that we license from third parties. In such cases, we would be reliant on the licensor to take

any necessary actions. We cannot be certain that such licensor would act with our best interests in mind, or in compliance with applicable laws and regulations, or that their actions would result in valid and enforceable patents. For example, it is possible that a licensor's actions in enforcing and/or defending a patent licensed by use may be less vigorous than had we conducted them ourselves. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Disputes may also arise between us and our licensors regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- our financial or other obligations under the license agreement;
- whether and the extent to which our technology and processes infringe intellectual property of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other rights to third parties under collaborative development relationships;
- our diligence obligations with respect to the use of licensed technology in relation to our development and commercialization of our genome editing systems and what activities satisfy those diligence obligations;
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected genome editing systems.

The risks described elsewhere pertaining to our intellectual property rights also apply to the intellectual property rights that we may own or in-license now or in the future, and any failure by us or our licensors to obtain, maintain, defend and enforce these rights could have an adverse effect on our business. In some cases we may not have control over the prosecution, maintenance or enforcement of the patents that we license, and may not have sufficient ability to provide input into the patent prosecution, maintenance and defense process with respect to such patents, and potential future licensors may fail to take the steps that we believe are necessary or desirable in order to obtain, maintain, defend and enforce the licensed patents.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our trademarks of interest and our business may be adversely affected.

Our trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We rely on both registration and common law protection for our trademarks. As a means to enforce our trademark rights and prevent infringement, we may be required to file trademark claims against third parties or initiate trademark opposition proceedings. This can be expensive and time-consuming, particularly for a company of our size. We may not be able to protect our rights to these trademarks and trade names or may be forced to stop using these names, which we need for name recognition by potential partners or customers in our markets of interest. At times, competitors may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks

or trade names. Over the long term, if we are unable to establish name recognition based on our trademarks and trade names, then we may not be able to compete effectively and our business may be adversely affected. During trademark registration proceedings, we may receive rejections. Although we would be given an opportunity to respond to those rejections, we may be unable to overcome such rejections. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings. Moreover, any name we propose to use for our products in the United States must be approved by the FDA, regardless of whether we have registered it, or applied to register it, as a trademark. The FDA typically conducts a review of proposed product names, including an evaluation of potential for confusion with other product names. If the FDA objects to any of our proposed product names, we may be required to expend significant additional resources in an effort to identify a usable substitute name that would qualify under applicable trademark laws, not infringe the existing rights of third parties and be acceptable to the FDA. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively and our business may be adversely affected.

Intellectual property rights do not necessarily address all potential threats to our business.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business, or permit us to maintain our competitive advantage. The following examples are illustrative:

- others may be able to make products that are competitive to our genome editing systems or any of our future genome editing systems but that are not covered by the claims of our patent portfolio;
- others may independently develop similar or alternative technologies or otherwise circumvent any of our technologies without infringing our patent portfolio;
- we or any of our collaborators might not have been the first to invent the inventions covered by our patent portfolio;
- we or any of our collaborators might not have been the first to file patent applications covering certain of the patents or patent applications that we or they own or have obtained a license, or will own or will have obtained a license;
- it is possible that our pending patent applications or those that we may file in the future will not lead to issued patents;
- others may have access to the same intellectual property rights licensed to us on a non-exclusive basis in the future;
- issued patents that we own may not provide us with any competitive advantage, or may be held invalid or unenforceable, including as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights, or in countries where research and development safe harbor laws exist, and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- ownership of our patent portfolio may be challenged by third parties;
- the patents of third parties or pending or future applications of third parties, if issued, may have an adverse effect on our business;

- patent enforcement is expensive and time-consuming and difficult to predict; thus, we may not be able to enforce any of our patents against a competitor; and
- we may choose not to file a patent application for certain inventions, instead choosing to rely on trade secret protection, and a third party may subsequently file a patent covering such intellectual property.

Risks Related to the Offering, our Common Stock, and Operating as a Public Company

You will incur immediate and substantial dilution as a result of this offering.

If you purchase common stock in this offering, you will incur immediate and substantial dilution of $ per share, representing the difference between the assumed initial public offering price of $ per share, the estimated midpoint of the price range set forth on the cover page of this prospectus, and our pro forma as adjusted net tangible book value per share as of , 2023 after giving effect to this offering. To the extent the underwriters exercise their option to purchase additional shares or our restricted common stock issued in the Reorganization vests, you will incur further dilution. For a further description of the dilution you will experience immediately after this offering, see “Dilution.”

The market price of our common stock may be volatile, which could result in substantial losses for investors purchasing shares in this offering.

The initial public offering price for our common stock was determined through negotiations with the underwriters. This initial public offering price may vary from the market price of our common stock after the offering. As a result, you may not be able to sell your common stock at or above the initial public offering price. The market price for our common stock may be influenced by those factors discussed in this “Risk Factors” section and many others, some of which may include:

- the success of existing or new competitive product candidates or technologies;
- the timing and results of preclinical studies and clinical trials for any product candidates we may develop;
- failure or discontinuation of any of our development and research programs;
- results of any preclinical studies, clinical trials or regulatory approvals of product candidates of our competitors, or announcements about new research programs or product candidates of our competitors;
- developments or changing views regarding the use of genetic therapies, including those that involve genome editing;
- commencement or termination of collaborations for our product development and research programs;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other intellectual property or proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our research programs, clinical development programs or product candidates that we may develop;
- the results of our efforts to develop product candidates;

- actual or anticipated changes in estimates as to financial results, development timelines or recommendations by securities analysts, if any, that cover our stock;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders or other stockholders;
- expiration of market stand-off or lock-up agreements;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions, including COVID-19, the conflict between Russia and Ukraine, rising interest rates and inflation; and
- the other factors described in this “Risk Factors” section.

In recent years, the stock market in general and the market for pharmaceutical and biotechnology companies in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to changes in the operating performance of the companies whose stock is experiencing those price and volume fluctuations. In particular, in relation to uncertainty around inflation and the U.S. Federal Reserve’s measures to slow inflation, the stock market has been exceptionally volatile. Market and industry factors may seriously affect the market price of our common stock, regardless of our actual operating performance. These fluctuations may be even more pronounced in the trading market for our stock shortly following this offering. Following periods of such volatility in the market price of a company’s securities, securities class action litigation has often been brought against that company. Because of the potential volatility of our stock price, we may become the target of securities litigation in the future.

Securities litigation could result in substantial costs and divert management’s attention and resources from our business.

We have wide discretion in the use of the net proceeds from this offering and may not use them effectively.

We cannot specify with certainty the particular uses of the net proceeds we will receive from this offering. Our management will have wide discretion in the application of the net proceeds, including for any of the purposes described in “Use of Proceeds.” Accordingly, you will have to rely upon the judgment of our management with respect to the use of the proceeds, with only limited information concerning management’s specific intentions. Our management may spend a portion or all of the net proceeds from this offering in ways that our stockholders may not desire or that may not yield a favorable return. The failure by our management to apply these funds effectively could harm our business, financial condition, results of operations and prospects. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, and particularly after we are no longer an “emerging growth company,” we will incur significant legal, accounting and other expenses that we did not incur as a private company. The Sarbanes-Oxley Act of 2002 (“SOX”), the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of the Nasdaq Global Select Market and other applicable securities rules and regulations impose

various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. We expect that we will need to hire additional accounting, finance and other personnel in connection with our becoming, and our efforts to comply with the requirements of being, a public company. Our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements. These requirements will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect that the rules and regulations applicable to us as a public company may make it more difficult and more expensive for us to obtain director and officer liability insurance, which could make it more difficult for us to attract and retain qualified members of our board of directors. We are currently evaluating these rules and regulations and cannot predict or estimate the amount of additional costs we may incur or the timing of such costs. These rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

Pursuant to SOX Section 404, we will be required to furnish a report by our management on our internal control over financial reporting beginning with our second filing of an Annual Report on Form 10-K with the SEC after we become a public company. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with SOX Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants, adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by SOX Section 404. This could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

We do not know whether a market will develop for our common stock or what the market price of our common stock will be, and, as a result, it may be difficult for you to sell your shares of our common stock.

Before this offering, there was no public trading market for our common stock. Although we have applied to list our common stock on the Nasdaq Global Select Market, an active trading market for our shares may never develop or be sustained following this offering. If a market for our common stock does not develop or is not sustained, it may be difficult for you to sell your shares of common stock at an attractive price or at all. We cannot predict the prices at which our common stock will trade. It is possible that in one or more future periods our results of operations may be below the expectations of public market analysts and investors, and, as a result of these and other factors, the price of our common stock may fall.

If securities analysts do not publish research or reports about our business or if they publish negative evaluations of our stock, the price of our stock could decline.

The trading market for our common stock will rely in part on the research and reports that industry or financial analysts publish about us or our business. We do not currently have and may never obtain research coverage by industry or financial analysts. If no or few analysts commence coverage of us, the trading price of our stock would likely decrease. Even if we do obtain analyst coverage, if one or more of the analysts covering our business downgrade their evaluations of our stock, the price of our stock could decline. If one or more of these analysts cease to cover our stock, we could lose visibility in the market for our stock, which in turn could cause our stock price to decline.

Future sales of our common stock in the public market could cause our stock price to fall.

Our stock price could decline as a result of sales of a large number of shares of our common stock after this offering or the perception that these sales could occur. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

Upon completion of this offering, shares of our common stock will be outstanding (or shares of common stock will be outstanding assuming exercise in full of the underwriters' option to purchase additional shares), based on our shares outstanding as of , 2023. All shares of common stock expected to be sold in this offering will be freely tradable without restriction or further registration under the Securities Act of 1933, as amended (the "Securities Act"), unless held by our "affiliates," as that term is defined in Rule 144 under the Securities Act. The resale of the remaining , or approximately % of our outstanding shares after this offering, is currently prohibited or otherwise restricted as a result of securities law provisions, market standoff agreements entered into by our stockholders with us or lock-up agreements entered into by our stockholders with the underwriters. However, subject to applicable securities law restrictions and excluding shares of restricted common stock that will remain unvested, these shares will be able to be sold in the public market beginning 180 days after the date of this prospectus. Shares of unvested restricted common stock that were issued and outstanding as of the date of this prospectus will become available for sale immediately upon the vesting of such shares, as applicable, and the expiration of any applicable market stand-off or lock-up agreements. Shares issued upon the exercise of stock options pursuant to future awards that may be granted under our equity incentive plans or pursuant to future awards granted under those plans will become available for sale in the public market to the extent permitted by the provisions of applicable vesting schedules, any applicable market stand-off and lock-up agreements and Rule 144 and Rule 701 under the Securities Act. For more information see the section entitled "Shares Eligible for Future Sale" included elsewhere in this prospectus.

Upon completion of this offering, the holders of approximately shares, or approximately %, of our common stock, will have rights, subject to some conditions, to require us to file registration statements covering the sale of their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. We also intend to register the offer and sale of all shares of common stock that we may issue under our equity compensation plans. Once we register the offer and sale of shares for the holders of registration rights and shares to be issued under our equity incentive plans, they can be freely sold in the public market upon issuance, subject to the lock-up agreements described in the section entitled "Underwriting" included elsewhere in this prospectus.

In addition, in the future, we may issue additional shares of common stock or other equity or debt securities convertible into common stock in connection with a financing, acquisition, litigation settlement, employee arrangements or otherwise. Any such issuance could result in substantial dilution to our existing stockholders and could cause our stock price to decline.

We are an "emerging growth company" and the reduced disclosure requirements applicable to emerging growth companies may make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"), and may remain an emerging growth company for up to five years. For so long as we remain an emerging growth company, we are permitted and plan to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include not being required to comply with the auditor attestation requirements of SOX Section 404, not being required to comply with any requirement for a supplement to the auditor's report providing additional information about the audit and the financial statements, reduced disclosure obligations regarding executive compensation and exemptions from the requirements of holding a nonbinding advisory vote on

executive compensation and stockholder approval of any golden parachute payments not previously approved. As a result, the information we provide stockholders will be different than the information that is available with respect to other public companies. In this prospectus, we have not included all of the executive compensation related information that would be required if we were not an emerging growth company.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption, and, therefore, while we are an emerging growth company we will not be subject to the new or revised accounting standards at the same time that they become applicable to other public companies that are not emerging growth companies. As a result of this election, our financial statements may not be comparable to those of other public companies that comply with new or revised accounting pronouncements as of public company effective dates. We may choose to early adopt any new or revised accounting standards whenever such early adoption is permitted for private companies.

We cannot predict whether investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

Insiders will continue to have substantial influence over us after this offering, which could limit your ability to affect the outcome of key transactions, including a change of control.

After this offering, our directors and executive officers and their affiliates will beneficially own shares representing approximately % percent of our outstanding common stock. As a result, these stockholders, if they act together, will be able to influence our management and affairs and all matters requiring stockholder approval. For example, these stockholders may be able to control elections of directors, amendments of our organizational documents or approval of any merger, sale of assets or other major corporate transaction. This concentration of ownership may have the effect of delaying or preventing a change in control of our company and might affect the market price of our common stock.

We do not expect to pay any dividends for the foreseeable future. Investors in this offering may never obtain a return on their investment.

You should not rely on an investment in our common stock to provide dividend income. We do not anticipate that we will pay any dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our existing operations. In addition, any future credit facility may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any return on their investment. As a result, investors seeking cash dividends should not purchase our common stock.

If we fail to establish and maintain proper and effective internal control over financial reporting, our operating results and our ability to operate our business could be harmed.

Ensuring that we have adequate internal financial and accounting controls and procedures in place so that we can produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements in accordance with generally accepted accounting principles. In connection with this offering, we intend to
begin the process of documenting, reviewing and improving our internal controls and procedures for

compliance with SOX Section 404, which will require annual management assessment of the effectiveness of our internal control over financial reporting starting with our second filing of an Annual Report on Form 10-K.

Implementing any appropriate changes to our internal controls may distract our officers and employees, entail substantial costs to modify our existing processes and take significant time to complete. These changes may not, however, be effective in maintaining the adequacy of our internal controls, and any failure to maintain that adequacy or consequent inability to produce accurate financial statements on a timely basis could increase our operating costs and harm our business. In addition, investors' perceptions that our internal controls are inadequate or that we are unable to produce accurate financial statements on a timely basis cause investors to lose confidence in the accuracy and completeness of our financial reports and could cause the market price of our common stock to decline significantly.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

Upon the closing of this offering, we will become subject to the periodic reporting requirements of the Exchange Act. We designed our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

These inherent limitations include the facts that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

Our amended and restated bylaws that will become effective upon the effectiveness of our registration statement designate specific courts as the exclusive forum for certain litigation that may be initiated by our stockholders, which could limit stockholders' ability to obtain a favorable judicial forum for disputes with us.

Pursuant to our amended and restated bylaws that will become effective upon the effectiveness of our registration statement, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware is the sole and exclusive forum for any state law claims for (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a claim of or based on a breach of a fiduciary duty owed by any director, officer or other employee of ours to us or our stockholders; (iii) any action asserting a claim pursuant to any provision of the DGCL, our amended and restated certificate of incorporation or our amended and restated bylaws or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware; or (iv) any action asserting a claim governed by the internal affairs doctrine (the "Delaware Forum Provision"). The Delaware Forum Provision will not apply to any causes of action arising under the Securities Act or the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Our amended and restated bylaws further provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, the Exchange Act, the respective rules and regulations promulgated thereunder or the Federal Forum Provision. In addition, our amended and restated bylaws provide that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock is deemed to have notice of and consented to the Delaware Forum Provision and the Federal Forum Provision; provided, however, that stockholders cannot and will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder.

We recognize that the Delaware Forum Provision and the Federal Forum Provision in our amended and restated bylaws may impose additional litigation costs on stockholders in pursuing any such claims, particularly if the stockholders do not reside in or near the State of Delaware. Additionally, the forum selection clauses in our amended and restated bylaws may limit our stockholders' ability to bring a claim in a judicial forum that they find favorable for disputes with us or our directors, officers or employees, which may discourage the filing of lawsuits against us and our directors, officers and employees, even though an action, if successful, might benefit our stockholders. In addition, while the Delaware Supreme Court ruled in March 2020 that federal forum selection provisions purporting to require claims under the Securities Act be brought in federal court are "facially valid" under Delaware law, there is uncertainty as to whether other courts will enforce our Federal Forum Provision. If the Federal Forum Provision is found to be unenforceable, we may incur additional costs associated with resolving such matters. The Federal Forum Provision may also impose additional litigation costs on stockholders who assert that the provision is not enforceable or invalid. The Court of Chancery of the State of Delaware and the federal district courts of the United States may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments may be more or less favorable to us than our stockholders.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws that will become effective upon the effectiveness of our registration statement and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management.

Our amended and restated certificate of incorporation and amended and restated bylaws that will become effective upon the effectiveness of our registration statement and Delaware law contain provisions that may have the effect of discouraging, delaying or preventing a change in control of us or changes in our management that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares. Our amended and restated certificate of incorporation, which will become effective immediately prior to the closing of this offering, and amended and restated bylaws, which will become effective upon the effectiveness of the registration statement of which this prospectus is a part, include provisions that:

- authorize "blank check" preferred stock, which could be issued by our board of directors without stockholder approval and may contain voting, liquidation, dividend and other rights superior to our common stock;
- create a classified board of directors whose members serve staggered three-year terms;
- specify that special meetings of our stockholders can be called only by our board of directors;
- prohibit stockholder action by written consent;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- provide that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum;
- provide that our directors may be removed only for cause;
- specify that no stockholder is permitted to cumulate votes at any election of directors;
- expressly authorized our board of directors to make, alter, amend or repeal our amended and restated bylaws; and

- require supermajority votes of the holders of our common stock to amend specified provisions of our amended and restated certificate of incorporation and amended and restated bylaws.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock.

In addition, because we are incorporated in the State of Delaware, we are governed by the provisions of Section 203 of the DGCL, which prohibits a person who owns in excess of 15 percent of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15 percent of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Any provision of our amended and restated certificate of incorporation, amended and restated bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock and could also affect the price that some investors are willing to pay for our common stock.

Adverse developments affecting the financial services industry could adversely affect our current and projected business operations and our financial condition and results of operations.

Adverse developments that affect financial institutions, such as events involving liquidity that are rumored or actual, have in the past and may in the future lead to bank failures and market-wide liquidity problems. For example, on March 10, 2023, Silicon Valley Bank ("SVB") was closed by the California Department of Financial Protection and Innovation, which appointed the Federal Deposit Insurance Corporation ("FDIC") as receiver. Similarly, on March 12, 2023, Signature Bank was also swept into receivership. The U.S. Department of Treasury, the Federal Reserve Board (the "Federal Reserve"), and the FDIC released a statement that indicated that all depositors of SVB would have access to all of their funds, including funds held in uninsured deposit accounts, after only one business day of closure. The U.S. Department of Treasury, FDIC and Federal Reserve have announced a program to provide up to $25 billion of loans to financial institutions secured by certain of such government securities held by financial institutions to mitigate the risk of potential losses on the sale of such instruments, widespread demands for customer withdrawals or other liquidity needs of financial institutions for immediately liquidity may exceed the capacity of such program. There is no guarantee, however, that the U.S. Department of Treasury, FDIC and Federal Reserve will provide access to uninsured funds in the future in the event of the closure of other banks or financial institutions, or that they would do so in a timely fashion.

At this time, we hold substantially all of our cash on deposit at SVB (which has been assumed by First Citizens) and we have not experienced any adverse impact to our current and projected business operations, financial condition or results of operations as a result of the closure of SVB or any other banks. We plan to diversify our cash deposit holdings between multiple financial institutions. However, uncertainty remains over liquidity concerns in the broader financial services industry, and our business, our business partners, or industry as a whole may be adversely impacted in ways that we cannot predict at this time. If, for example, other banks and financial institutions enter receivership or become insolvent in the future in response to financial conditions affecting the banking system and financial markets, our ability to access our existing cash, cash equivalents and available-for-sale marketable securities may be threatened.

Although we expect to assess our banking relationships as we believe necessary or appropriate, our access to cash in amounts adequate to finance or capitalize our current and projected future business operations could be significantly impaired by factors that affect the financial institutions with which we have banking relationships, and in turn, us. These factors could include, among others, events such as liquidity constraints or failures, the ability to perform obligations under various types of financial, credit or liquidity agreements or arrangements, disruptions or instability in the financial services industry or financial markets, or concerns or negative expectations about the prospects for

companies in the financial services industry. These factors could also include factors involving financial markets or the financial services industry generally. The results of events or concerns that involve one or more of these factors could include a variety of material and adverse impacts on our current and projected business operations and our financial condition and results of operations. These could include, but may not be limited to, delayed access to deposits or other financial assets or the uninsured loss of deposits or other financial assets; or termination of cash management arrangements and/or delays in accessing or actual loss of funds subject to cash management arrangements.

In addition, widespread investor concerns regarding the U.S. or international financial systems could result in less favorable commercial financing terms, including higher interest rates or costs and tighter financial and operating covenants, or systemic limitations on access to credit and liquidity sources, thereby making it more difficult for us to acquire financing on acceptable terms or at all. Any decline in available funding or access to our cash and liquidity resources could, among other risks, adversely impact our ability to meet our operating expenses, financial obligations or fulfill our other obligations, result in breaches of our financial and/or contractual obligations or result in violations of federal or state wage and hour laws. Any of these impacts, or any other impacts resulting from the factors described above or other related or similar factors not described above, could have material adverse impacts on our liquidity and our current and/or projected business operations and financial condition and results of operations.

In addition, one or more of our critical vendors, third party manufacturers, or other business partners could be adversely affected by any of the liquidity or other risks that are described above, which in turn, could have a material adverse effect on our current and/or projected business operations and results of operations and financial condition. Any business partner bankruptcy or insolvency, or any breach or default by a business partner, or the loss of any significant supplier relationships, could result in material adverse impacts on our current and/or projected business operations and financial condition.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the sections entitled “Prospectus Summary,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and “Business,” contains express or implied forward-looking statements that are based on our management’s belief and assumptions and on information currently available to our management. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to future events or our future operational or financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements in this prospectus include, but are not limited to, statements about:

- the initiation, timing, progress and results of our research and development programs, preclinical studies and future clinical trials;
- our ability to demonstrate, and the timing of, preclinical proof-of-concept *in vivo* and *ex vivo* for multiple programs;
- our ability to advance any product candidates that we may identify and successfully complete any clinical studies, including the manufacture of any such product candidates;
- our ability to quickly leverage programs within our initial target indications and to progress additional programs to further develop our pipeline;
- the timing of our IND applications submissions;
- the implementation of our strategic plans for our business, programs and technology;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our genome editing technology and platform;
- developments related to our competitors and our industry;
- our ability to leverage the clinical, regulatory, and manufacturing advancements made by genome editing programs to accelerate our clinical trials and approval of product candidates;
- our ability to identify and enter into future license agreements and collaborations;
- developments related to our genome editing technology and platform;
- regulatory developments in the United States and foreign countries;
- our ability to attract and retain key scientific and management personnel; and
- our use of proceeds from this offering, estimates of our expenses, capital requirements, and needs for additional financing.

In some cases, you can identify forward-looking statements by terminology such as “may,” “should,” “expects,” “intends,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “continue” or the negative of these terms or other comparable terminology. These statements are only predictions. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties, and other factors, which are, in some cases, beyond our control and which could materially affect results. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the section entitled “Risk Factors” and elsewhere in this prospectus. If one or more of

these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those implied or projected by the forward-looking statements. No forward-looking statement is a guarantee of future performance. You should read this prospectus and the documents that we reference in this prospectus and have filed with the SEC as exhibits to the registration statement, of which this prospectus forms a part, completely and with the understanding that our actual future results may be materially different from any future results expressed or implied by these forward-looking statements.

The forward-looking statements in this prospectus represent our views as of the date of this prospectus. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should therefore not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus.

This prospectus also contains estimates, projections and other information concerning our industry, our business and the markets for our product candidates. Information that is based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances that are assumed in this information. Unless otherwise expressly stated, we obtained this industry, business, market, and other data from our own internal estimates and research as well as from reports, research surveys, studies, and similar data prepared by market research firms and other third parties, industry, medical and general publications, government data and similar sources. While we are not aware of any misstatements regarding any third-party information presented in this prospectus, their estimates, in particular, as they relate to projections, involve numerous assumptions, are subject to risks and uncertainties and are subject to change based on various factors, including those discussed under the section entitled “Risk Factors” and elsewhere in this prospectus.

REORGANIZATION

We intend to engage in a series of transactions pursuant to which Metagenomi Technologies, LLC, the sole stockholder and holding company parent of Metagenomi, Inc., will merge with and into Metagenomi, Inc., and Metagenomi, Inc. will continue to exist as the surviving corporation. Throughout this prospectus, we refer to these transactions and the related transactions enumerated below collectively as the "Reorganization." To consummate the Reorganization, we will file a certificate of merger and amended and restated certificate of incorporation with the Secretary of State of the State of Delaware. In connection with the Reorganization:

- holders of Metagenomi Technologies, LLC's outstanding Series A-1 redeemable convertible preferred units ("Series A-1 preferred units") will receive share of Series A-1 redeemable convertible preferred stock ("Series A-1 preferred stock") of Metagenomi, Inc. for each Series A-1 preferred unit held immediately prior to the Reorganization, with an aggregate of shares of our Series A-1 redeemable convertible preferred stock issued in the Reorganization;
- holders of Metagenomi Technologies, LLC's outstanding Series A-2 redeemable convertible preferred units ("Series A-2 preferred units") will receive share of Series A-2 redeemable convertible preferred stock ("Series A-2 preferred stock") of Metagenomi, Inc. for each Series A-2 preferred unit held immediately prior to the Reorganization, with an aggregate of shares of our Series A-2 redeemable convertible preferred stock issued in the Reorganization;
- holders of Metagenomi Technologies, LLC's outstanding Series A-3 redeemable convertible preferred units ("Series A-3 preferred units") will receive share of Series A-3 redeemable convertible preferred stock ("Series A-3 preferred stock") of Metagenomi, Inc. for each Series A-3 preferred unit held immediately prior to the Reorganization, with an aggregate of shares of our Series A-3 redeemable convertible preferred stock issued in the Reorganization;
- holders of Metagenomi Technologies, LLC's outstanding Series A-4 redeemable convertible preferred units ("Series A-4 preferred units") will receive share of Series A-4 redeemable convertible preferred stock ("Series A-4 preferred stock") of Metagenomi, Inc. for each Series A-4 preferred unit held immediately prior to the Reorganization, with an aggregate of shares of our Series A-4 redeemable convertible preferred stock issued in the Reorganization;
- holders of Metagenomi Technologies, LLC's outstanding Series A-5 redeemable convertible preferred units ("Series A-5 preferred units") will receive share of Series A-5 redeemable convertible preferred stock ("Series A-5 preferred stock") of Metagenomi, Inc. for each Series A-5 preferred unit held immediately prior to the Reorganization, with an aggregate of shares of our Series A-5 redeemable convertible preferred stock issued in the Reorganization;
- holders of Metagenomi Technologies, LLC's outstanding Series B redeemable convertible preferred units ("Series B preferred units") will receive share of Series B redeemable convertible preferred stock ("Series B preferred stock") of Metagenomi, Inc. for each Series B preferred unit held immediately prior to the Reorganization, with an aggregate of shares of our Series B redeemable convertible preferred stock issued in the Reorganization;
- holders of Metagenomi Technologies, LLC's outstanding Series B-1 redeemable convertible preferred units ("Series B-1 preferred units") will receive share of Series B-1 redeemable convertible preferred stock ("Series B-1 preferred stock") of Metagenomi, Inc. for each Series B-1 preferred unit held immediately prior to the Reorganization, with an aggregate of shares of our Series B-1 redeemable convertible preferred stock issued in the Reorganization;

- holders of Metagenomi Technologies, LLC's outstanding common units will receive shares of common stock of Metagenomi, Inc. for each common unit held immediately prior to the Reorganization, with an aggregate of shares of our common stock (which includes shares of unvested restricted common stock) issued in the Reorganization; and
- holders of Metagenomi Technologies, LLC's outstanding profits interests will receive shares of common stock of Metagenomi, Inc. for each profits interest held immediately prior to the Reorganization, with an aggregate of shares of our common stock issued (which includes shares of unvested restricted common stock) in the Reorganization. Vesting terms of outstanding profits interests will not change.

Metagenomi, Inc.'s Series A-1 preferred stock, Series A-2 preferred stock, Series A-3 preferred stock, Series A-4 preferred stock, Series A-5 preferred stock, and Series B preferred stock and Series B-1 preferred stock will be designated as preferred stock under Metagenomi, Inc.'s amended and restated certificate of incorporation. All outstanding shares of our redeemable convertible preferred stock will be convertible into shares of common stock on a one-for- basis.

In connection with the Reorganization, by operation of law, Metagenomi, Inc. will acquire all assets of Metagenomi Technologies, LLC, and assume all of its liabilities and obligations. The purpose of the Reorganization is to reorganize our corporate structure so that Metagenomi, Inc. will continue as a corporation and the existing investors of Metagenomi Technologies, LLC will own Metagenomi, Inc. capital stock rather than members' equity interests in Metagenomi Technologies, LLC. The Reorganization generally is intended to be non-taxable for U.S. income tax purposes. Except as context otherwise requires, all information included in this prospectus is presented giving effect to the Reorganization.

USE OF PROCEEDS

We estimate that the net proceeds to us from the sale of shares of our common stock in this offering will be approximately $ million, or approximately $ million if the underwriters exercise in full their option to purchase additional shares, assuming an initial public offering price of $ per share, the estimated midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the estimated midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by $ million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase (decrease) of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) net proceeds to us from this offering by $ million, assuming no change in the assumed initial public offering price per share, the estimated midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We do not expect that a change in the offering price or the number of shares by these amounts would have a material effect on our intended uses of the net proceeds from this offering, although it may impact the amount of time prior to which we may need to seek additional capital.

As of June 30, 2023, we had cash, cash equivalents and available-for-sale marketable securities of $318.4 million. We currently intend to use the net proceeds from this offering, together with our existing cash and cash equivalents, as follows:

- ; and
- the remainder for general corporate purposes.

Based on our current plans, we believe our existing cash and cash equivalents and available-for-sale marketable securities, together with the net proceeds from this offering, will be sufficient to fund our operations and capital expenditure requirements into .

All of our programs are currently in preclinical stage of development. The expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the closing of this offering or the amounts that we will actually spend on the uses set forth above. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress of our research and development, the status of and results from pre-clinical studies or clinical trials we may commence in the future, as well as any collaborations that we may enter into with third parties for our product candidates or strategic opportunities that become available to us, and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering. We expect the net proceeds from this offering, together with our existing cash and cash equivalents, and available-for-sale marketable securities, will not be sufficient for us to advance any of our programs through regulatory approval, and we will need to raise additional capital to complete the development and potential commercialization of any of our programs.

Pending our use of proceeds from this offering, we intend to invest the net proceeds in a variety of capital preservation instruments, including short-term, investment-grade, interest-bearing financial instruments and U.S. government securities.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our members' capital. We currently intend to retain any future earnings to fund the development and expansion of our business, and therefore we do not anticipate paying cash dividends on our common stock in the foreseeable future. Any future determination to pay dividends will be at the discretion of our board of directors and will depend on our results of operations, financial condition, capital requirements and other factors deemed relevant by our board of directors.

CAPITALIZATION

The following table sets forth our cash, cash equivalents, available-for-sale marketable securities and our capitalization as of June 30, 2023:

- on an actual basis;
- on a pro forma basis to give effect to (i) the Reorganization, (ii) the conversion of shares of our redeemable convertible preferred stock, issued in connection with the Reorganization in exchange for redeemable convertible preferred units outstanding as of June 30, 2023, in connection with the Reorganization, into an equivalent number of shares of our common stock, immediately prior to the completion of this offering and (iii) the filing and effectiveness of our amended and restated certificate of incorporation immediately prior to the completion of this offering, in each case as if such events had occurred on June 30, 2023; and
- on a pro forma as adjusted basis to give further effect to our issuance and sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, which is the estimated midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma as adjusted information below is illustrative only, and our capitalization following the completion of this offering will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. You should read the information in this table together with our consolidated financial statements and the related notes included elsewhere in this prospectus and "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus.

	As of June 30, 2023		
	Actual	Pro forma	Pro forma as adjusted
	(in thousands, except share and per share data)		
Cash and cash equivalents	$ 51,648	$	$
Available-for-sale marketable securities	266,792		
Total cash, cash equivalents and available-for-sale marketable securities	$ 318,440		
Redeemable convertible preferred units; no par value; 41,813,375 units authorized, 41,813,375 units issued and outstanding, actual; no units authorized issued and outstanding, pro forma and pro forma as adjusted	350,758	—	—
Redeemable Convertible preferred stock; $ par value; no shares authorized, issued and outstanding, actual; shares authorized and no shares issued and outstanding, pro forma; and no shares authorized, issued and outstanding, pro forma as adjusted	—	—	—
Members'/Stockholders' equity (deficit):			
Profits interests, no par value; 14,604,165 units authorized, 9,370,804 units issued and outstanding, actual; no units authorized, issued and outstanding, pro forma and pro forma as adjusted	3,694	—	—
Common units, no par value; 66,000,000 units authorized, 5,947,500 units issued and outstanding, actual; no units authorized, issued and outstanding, pro forma and pro forma as adjusted	26	—	—
Preferred stock, $ par value; no shares authorized, issued or outstanding, actual and pro forma; shares authorized and no shares issued or outstanding, pro forma as adjusted	—	—	—
Common stock, $ par value; no shares authorized, issued and outstanding, actual; shares authorized, shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	—		
Additional paid-in capital	—		
Accumulated other comprehensive loss	(429)		
Accumulated deficit	(105,830)		
Total members'/stockholders' equity (deficit)	(102,539)		
Total capitalization	$ 248,219	$	$

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the estimated midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, total stockholders' equity (deficit) and total capitalization by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase (decrease) of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash and cash equivalents, total stockholders' equity (deficit) and total capitalization by $ million, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

You should read the information in this table together with our consolidated financial statements and the related notes included elsewhere in this prospectus and "Management's Discussion and Analysis of Financial Condition and Results of Operations" section of this prospectus.

The number of shares of our common stock outstanding after this offering assumes the Reorganization takes place immediately prior to the completion of this offering and is based on shares of our common stock (including shares of unvested restricted common stock) issued in exchange for common units and profits interests outstanding as of June 30, 2023, and after giving effect to the conversion of shares of our redeemable convertible preferred stock, issued in connection with the Reorganization in exchange for redeemable convertible preferred units outstanding as of June 30, 2023, into an equivalent number of shares of our common stock immediately prior to the completion of this offering.

The number of shares of common stock to be outstanding after this offering excludes:

- shares of common stock reserved for future issuance under our 2023 Stock Option and Incentive Plan (the "2023 Plan"), which will become effective on the date immediately prior to execution of the underwriting agreement related to this offering; and
- shares of common stock reserved for future issuance under our 2023 Employee Stock Purchase Plan (the "ESPP"), which will become effective on the date immediately prior to the execution of the underwriting agreement related to this offering.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock immediately after this offering.

Our historical net tangible book value (deficit) as of June 30, 2023 was $(104.2) million, or $(17.52) per our common unit. Our historical net tangible book value (deficit) is the amount of our total tangible assets less our total liabilities and the carrying values of our redeemable convertible preferred units, which is not included within members' deficit. Our historical net tangible book value (deficit) per unit represents historical net tangible book value (deficit) divided by 5,947,500 of our common units outstanding as of June 30, 2023.

Our pro forma net tangible book value as of June 30, 2023 was $, or $ per share of our common stock. Pro forma net tangible book value represents the amount of our total tangible assets less our total liabilities, after giving effect to (i) the Reorganization, (ii) the conversion of shares of our redeemable convertible preferred stock, issued in connection with the Reorganization in exchange for redeemable convertible preferred units into an equivalent number of shares of our common stock immediately prior to the completion of this offering, and (iii) the filing and effectiveness of our amended and restated certificate of incorporation immediately prior to the completion of this offering. Pro forma net tangible book value per share represents pro forma net tangible book value divided by the total number of shares outstanding as of June 30, 2023, after giving effect to the pro forma adjustments described above.

After giving further effect to our issuance and sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share, the estimated midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2023 would have been $ million, or $ per share. This amount represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders and immediate dilution in pro forma as adjusted net tangible book value of $ per share to new investors purchasing common stock in this offering.

Dilution per share to new investors is determined by subtracting pro forma as adjusted net tangible book value per share after this offering from the initial public offering price per share paid by new investors. The following table illustrates this dilution on a per share basis (without giving effect to any exercise by the underwriters of their option to purchase additional shares):

Assumed initial public offering price per share		**$**
Historical net tangible book value (deficit) per common unit as of June 30, 2023	$ (17.52)	
Increase per share attributable to the pro forma adjustments described above		
Pro forma net tangible book value per share as of June 30, 2023		
Increase in pro forma as adjusted net tangible book value per share attributable to new investors participating in this offering		
Pro forma as adjusted net tangible book value per share immediately after this offering		
Dilution per share to new investors participating in this offering		$

The dilution information discussed above is illustrative only and will change based on the actual initial public offering price and other terms of this offering determined at pricing. Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the estimated midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) our pro forma as adjusted net tangible book value per share after this offering by

$ and dilution per share to new investors purchasing common stock in this offering by $, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase our pro forma as adjusted net tangible book value per share after this offering by $ and decrease dilution per share to new investors purchasing common stock in this offering by $, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each decrease of 1,000,000 shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would decrease our pro forma as adjusted net tangible book value per share after this offering by $ and increase dilution per share to new investors purchasing common stock in this offering by $, assuming no change in the assumed initial public offering price and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise their option to purchase additional shares in full, our pro forma as adjusted net tangible book value per share after this offering would be $, representing an immediate increase in pro forma as adjusted net tangible book value per share of $ to existing stockholders and immediate dilution in pro forma as adjusted net tangible book value per share of $ to new investors purchasing common stock in this offering, based on the assumed initial public offering price of $ per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The following table summarizes on the pro forma as adjusted basis described above, the total number of shares of common stock purchased from us on an as converted to common stock basis, the total consideration paid or to be paid, and the average price per share paid or to be paid by existing members/stockholders and by new investors in this offering at an assumed initial public offering price of $ per share, which is the estimated midpoint of the estimated price range set forth on the cover of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. As the table shows, new investors purchasing common stock in this offering will pay an average price per share substantially higher than our existing members/ stockholders paid.

	Units/Shares Purchased		Total Consideration		Average Price
	Number	Percent	Amount	Percent	Per Unit/Share
Existing members/stockholders	47,760,875		$351,637,285		$7.36
Investors participating in this offering					
Total		100%	$	100%	

The table above assumes no exercise of the underwriters' option to purchase additional shares in this offering. If the underwriters' option to purchase additional shares is exercised in full, the number of shares of our common stock held by existing stockholders would be reduced to percent of the total number of shares of our common stock outstanding after this offering, and the number of shares of common stock held by new investors purchasing common stock in this offering would be increased to percent of the total number of shares of our common stock outstanding after this offering.

The discussion and tables above assume the Reorganization takes immediately place prior to the completion of this offering and are based on shares of our common stock (including shares of unvested restricted common stock) issued in exchange for common units and profits interests outstanding as of June 30, 2023, and after giving effect to the conversion of shares of our redeemable convertible preferred stock, issued in connection with the Reorganization, in exchange for redeemable convertible preferred units outstanding as of June 30, 2023, into an equivalent number of shares of our common stock immediately prior to the completion of this offering.

The number of shares of common stock to be outstanding after this offering excludes:

- shares of common stock reserved for future issuance under the 2023 Plan; and

- shares of common stock reserved for future issuance under the ESPP.

To the extent that new stock options are issued, or we issue additional shares of common stock in the future, there will be further dilution to new investors. In addition, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with our audited consolidated financial statements and unaudited condensed consolidated financial statements and the related notes appearing elsewhere in this prospectus. This discussion and other parts of this prospectus contain forward-looking statements that involve risks and uncertainties, such as statements regarding our plans, objectives, expectations, intentions and projections. Our actual results could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those discussed in the "Risk Factors" section of this prospectus. Our historical results are not necessarily indicative of the results that may be expected for any period in the future.

Overview

We are a precision genetic medicines company committed to developing curative therapeutics for patients using our proprietary, comprehensive metagenomics-derived genome editing toolbox. Genetic diseases are caused by a diverse set of mutations that have been largely inaccessible by genome engineering approaches to date. Genetic mutations are seen in a variety of forms, including deletions, insertions, single-base-pair changes and sequence repeats, and are found throughout the genome and across a variety of different cell types, tissues, and organ systems. Additionally, many diseases lack a genetic origin but have the potential to be effectively and permanently addressed through genome editing. We are harnessing the power of metagenomics, the study of genetic material recovered from the natural environment, to unlock four billion years of microbial evolution to discover and develop a suite of novel editing tools capable of correcting any type of genetic mutation found anywhere in the genome. Our comprehensive genome editing toolbox includes programmable nucleases, base editors, and RNA and DNA-mediated integration systems (including prime editing systems and clustered regularly interspaced short palindromic repeat ("CRISPR")-associated transposases ("CASTs")). We believe our diverse and modular toolbox positions us to access the entire genome and select the optimal tool to unlock the full potential of genome editing for patients.

Since our inception, we have devoted substantially all of our resources to organizing and staffing our company, business planning, raising capital, research and development activities, building our intellectual property portfolio and providing general and administrative support for these operations. We have historically financed our operations primarily through issuing redeemable convertible preferred units and convertible promissory notes and entering into collaboration agreements, which generate collaboration revenue.

We have incurred significant operating losses since inception and we expect to continue to incur substantial losses for the foreseeable future. Our net losses were $21.4 million and $43.6 million for the years ended December 31, 2021 and 2022, respectively. Our net losses were $18.6 million and $29.1 million for the six months ended June 30, 2022 and 2023, respectively. As of June 30, 2023, we had an accumulated deficit of $105.8 million. We anticipate that our expenses and operating losses will increase substantially for the foreseeable future as we:

- advance our current research activities and further develop our platform;
- develop, maintain, expand, and protect our intellectual property portfolio;
- continue preclinical development and initiate clinical trials for any product candidates we may identify;
- seek regulatory approval for any product candidates for which we successfully complete clinical trials;

- establish our manufacturing capabilities, including internal manufacturing facilities and contracting with other vendors;
- ultimately, commercialize any future product candidates for which we receive regulatory approval, requiring significant marketing, sales, and distribution infrastructure expenses;
- hire additional research and development, clinical, commercial, general and administrative personnel;
- acquire or in-license product candidates, intellectual property and technologies;
- establish and maintain collaborations;
- add operational, financial and management information systems and personnel; or
- incur additional legal, audit, accounting, compliance, insurance, investor relations and other expenses to operate as a public company that we did not incur as a private company.

We will not generate revenue from product sales unless and until we successfully initiate and complete clinical development and obtain regulatory approval for one or more product candidates. If we obtain regulatory approval for any product candidate and do not enter into a commercialization partnership, we expect to incur significant expenses related to developing our commercialization capability to support product sales, manufacturing, marketing, and distribution. As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through a combination of equity offerings, debt financings, collaborations, strategic alliances, and marketing, distribution or licensing arrangements with third parties. We may be unable to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as and when needed, we may have to significantly delay, reduce or eliminate the development and commercialization of our platform or delay our pursuit of potential in-licenses or acquisitions.

As of June 30, 2023, we had cash, cash equivalents and available-for-sale marketable securities of $318.4 million. We believe that the anticipated net proceeds from this offering, together with our existing cash, cash equivalents and available-for-sale marketable securities will be sufficient to fund our operating expenses and capital expenditure requirements through . We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. See “Liquidity and Capital Resources” and “Risk Factors—Risks Related To Our Financial Position and Need for Additional Capital.”

Macroeconomic Trends

Unfavorable conditions in the economy in the United States and abroad may negatively affect the growth of our business and our results of operations. For example, macroeconomic events, including, rising inflation, tensions in U.S.-China relations, the COVID-19 pandemic, the U.S. Federal Reserve raising interest rates, recent and potential future disruptions in access to bank deposits and lending commitments due to bank failures and the Russia-Ukraine war, have led to economic uncertainty and volatility globally. The effect of macroeconomic conditions may not be fully reflected in our results of operations until future periods. To date, the macroeconomic trends discussed above have not had a material adverse impact on our business, financial condition or results of operations. If, however, economic uncertainty increases or the global economy worsens, our business, financial condition and results of operations may be harmed. For further discussion of the potential impacts of macroeconomic events on our business, financial condition, and operating results, refer to the section titled “Risk Factors” included elsewhere in this prospectus.

Collaboration and License Agreements

Moderna Strategic Collaboration and License Agreement

On October 29, 2021, the effective date, we entered into a Strategic Collaboration and License Agreement (the "Moderna Agreement") with Moderna. We will collaborate with Moderna on the research and development of *in vivo* genome editing therapies directed at certain targets and the commercialization of such genome editing therapies. The collaboration provides Moderna with exclusive access to our technology platform during the research period in (1) the field of *in vivo* gene editing technology for a therapeutic, ameliorative or prophylactic application by way of knock-out through InDel formation or base editing or insertion of an exogenous DNA template (such field, "DT Field") and (2) the field of *in vivo* gene editing technology for a therapeutic, ameliorative or prophylactic application outside the use of (a) DNA donor templates and (b) no exogenous template at all but including (c) correction by base editing (such field, "RT Field"). We formed a joint steering committee, a joint research subcommittee and a joint patent subcommittee to oversee the collaboration activities.

Under the terms of the Moderna Agreement, we and Moderna will collaborate on one or more programs in the RT Field (the "Moderna RT program") and two programs in the DT Field (the "Moderna DT program" and the "DT Co-Co program").

With respect to the Moderna RT and Moderna DT programs, we will collaborate on the research and development of product candidates under the approved research plans. The initial research term of the Moderna RT program is four years, which may be extended by Moderna for an additional three years upon written notice and a payment of extension fees. The initial research term of the Moderna DT program is four years. We granted to Moderna an option to obtain an exclusive license to develop, manufacture and commercialize up to ten Moderna RT program candidates and up to two Moderna DT program candidates at any time during the research term and prior to filing of an IND application with the FDA or any similar application filed with a regulatory authority in a country other than the United States ("U.S."), subject to Moderna's payment of an option exercise fee of $10.0 million per target.

With respect to the DT Co-Co program, we will work together with Moderna on the co-development and commercialization of products and share costs and profits equally. We maintain commercialization rights in the U.S. (subject to Moderna's right to appoint up to 50% of the U.S. sales force for the DT Co-Co program), while Moderna maintains these rights in countries other than the U.S. The initial research term for the DT Co-Co program is four years, and each party has a right to opt-out of the DT Co-Co program at any time, at which point the other party has the right to solely continue the development and commercialization activities. If there is no development candidate nomination by the end of the initial research term, the DT Co-Co program will expire, unless we have mutually agreed to continue the program.

During the year ended December 31, 2021, we received a non-refundable upfront payment of $40.0 million and a $5.0 million payment for the first year of research costs. Concurrent with the Moderna Collaboration Agreement, Moderna also provided $30.0 million in cash in the form of a convertible promissory note (see Note 9 in our audited consolidated financial statements included elsewhere in this prospectus) pursuant to a convertible promissory note agreement dated October 29, 2021 (the "Moderna Convertible Promissory Note Agreement"). The convertible promissory note was converted into shares of Series B redeemable convertible preferred units in January 2022. Moderna will reimburse us up to $5.0 million in annual research and development costs related to the Moderna DT and Moderna RT programs, or up to the agreed amount of expenses per the budget. As of June 30, 2023, we have received a total of $49.6 million under the Moderna Collaboration Agreement, not including cost-sharing payments under the DT Co-Co program.

For the Moderna RT and Moderna DT programs, we are eligible to receive (i) technology milestone fees related to the achievement of certain preclinical research objectives of up to $75.0 million, (ii) development and regulatory milestones of up to $100.0 million per target, (iii) sales milestones of up to $200.0 million per target, and (iv) royalties ranging from a mid-single digit to a low-teens percentage of annual net sales of a licensed product. Any profits and losses from co-development and commercialization of the DT Co-Co program are shared equally between us and Moderna. With respect to the DT Co-Co program for which the opt-out party has exercised its opt-out right, the continuing party will pay to the opt-out party, certain development, regulatory and sales milestone payments that will not exceed an aggregate $239.0 million per DT Co-Co target, and opt-out royalties ranging from a high-single digit to a low-teens percentage of annual net sales of a licensed product.

The term of the Moderna Agreement will continue on a licensed product-by-licensed product and country-by-country basis, until the expiration of the applicable royalty term. The royalty term commences on the first commercial sale of a licensed product and terminates on the latest of: (a) the expiration or abandonment of the last valid claim of a patent within the licensed Moderna DT or RT technology; (b) 10 years after the first commercial sale of a licensed product; and (c) expiration of the regulatory exclusivity. Upon the expiration of the term of a licensed product in the Moderna DT or Moderna RT program, the licenses granted to Moderna will survive and become perpetual, fully paid and royalty-free. Each party may terminate the Moderna Agreement on a program-by-program basis upon written notice to the other party for an uncured material breach or insolvency. We may terminate the Moderna Agreement upon written notice to Moderna for a patent challenge. Additionally, Moderna may terminate the agreement at its convenience with respect to Moderna DT or Moderna RT programs for any reason upon at least: (a) 60 days' prior written notice if a first commercial sale has not occurred for the products in such program, or (b) 180 days' prior written notice if a first commercial sale of a product in such program has occurred.

We concluded that the Moderna DT and Moderna RT programs are in the scope of ASC 606. We determined that the licenses granted to Moderna, and its participation in the joint steering committee are not capable of being distinct from the preclinical research and development services and therefore concluded that there are two performance obligations: (1) the Moderna RT program and (2) the Moderna DT program. We also concluded that the option to obtain an exclusive license and options to extend Moderna RT program term do not include significant incremental discounts, and as such, the options do not provide material rights.

We concluded the DT Co-Co program research activities are within the scope of ASC 808, as we and Moderna are both active participants in the research, development and commercialization activities, are exposed to significant risks and rewards that are dependent on the success of the DT Co-Co program activities and share costs and profits equally. We determined that the guidance in ASC 730, *Research and Development*, was appropriate to apply to the DT Co-Co program research activities by analogy, based on the nature of the cost sharing provisions of the agreement. We concluded that DT Co-Co program is one unit of accounting, as the co-exclusive license is not distinct from the research and development and the participation in joint steering committee activities. We recognize payments to or from Moderna related to the DT Co-Co program cost sharing research activities as an increase to or reduction of research and development expenses, respectively.

We concluded that the Moderna Collaboration Agreement and the Moderna Convertible Promissory Note Agreement should be combined and treated as a single arrangement for accounting purposes as the agreements were entered into contemporaneously and in contemplation of one another. We estimated the contract consideration to be $90.0 million, which consisted of: 1) the non-refundable upfront collaboration payment of $40.0 million received in 2021, 2) $30.0 million in cash received in 2021 in exchange for the convertible promissory note and 3) the estimated cost reimbursements for Moderna DT and Moderna RT programs of $20.0 million. We constrained future milestones, as we assessed that it is probable that the inclusion of such variable consideration could result in a significant reversal of cumulative revenue in future

periods. During the year ended December 31, 2021, we recorded $30.0 million of the contract consideration for the convertible promissory note based on the fair value (see Note 9 in our audited consolidated financial statements included elsewhere in this prospectus) and allocated the transaction price of $60.0 million to each of the following programs on a relative standalone selling price basis: 1) $49.5 million to the Moderna RT program, 2) $5.5 million to the Moderna DT program, and 3) $5.0 million to the DT Co-Co program.

The variable consideration is reevaluated at each reporting period and as changes in circumstances occur. We recognize revenue for each of the Moderna DT and Moderna RT programs as collaboration revenue based on the measure of progress using an estimated cost-based input method each reporting period. We also amortize the allocation consideration for the DT Co-Co program of $5.0 million as a credit to research and development expenses during the discovery and lead optimization phases for the DT Co-Co program.

We recognized collaboration revenue of $0.2 million and $14.5 million in the consolidated statements of operations and comprehensive loss for the years ended December 31, 2021 and 2022, respectively. We recognized collaboration revenue of $6.7 million and $8.9 million in the condensed consolidated statements of operations and comprehensive loss for the six months ended June 30, 2022 and 2023, respectively. As of December 31, 2022 and June 30, 2023, deferred revenue related to the Moderna Agreement was $30.2 million and $21.0 million, respectively. Collaboration revenue recognized during the six months ended June 30, 2022 and 2023 included $6.7 million and $8.9 million that was included in deferred revenue as of December 31, 2021 and 2022, respectively. The value of the transaction price allocated to the remaining unsatisfied portion of the performance obligations was approximately $33.1 million as of June 30, 2023, which we expect to recognize as revenue over the next two-to-three years.

We recognized $0.2 million and $0.3 million in credits to research and development expenses related to cost sharing allocation and amortization of the collaboration advance, respectively, within research and development expenses in the consolidated statement of operations and comprehensive loss during the year ended December 31, 2021. We recognized $0.9 million and $3.5 million in credits to research and development expenses related to cost sharing allocation and amortization of the collaboration advance, respectively, during the year ended December 31, 2022. We recognized less than $0.1 million and $1.7 million in credits to research and development expenses related to cost sharing allocation and amortization of the collaboration advance, respectively, within research and development expenses in the condensed consolidated statement of operations and comprehensive loss during the six months ended June 30, 2022. We recognized $0.4 million and $0.4 million in credits to research and development expenses related to cost sharing allocation and amortization of the collaboration advance during the six months ended June 30, 2023, respectively. As of December 31, 2022, the collaboration advance balance was $1.1 million, partially offset by the cost-sharing receivable balance of $0.4 million, which was presented as a collaboration advance on our condensed consolidated balance sheet. As of June 30, 2023, the collaboration advance balance was $0.8 million, partially offset by the cost-sharing receivable balance of $0.4 million, which was presented as a collaboration advance on our condensed consolidated balance sheet.

For additional information regarding the Moderna Agreement, please see the section titled “Business—Our License and Collaboration Agreements.”

Affini-T Development, Option and License Agreement

On June 14, 2022, the effective date, we entered into a Development, Option and License Agreement (the “Affini-T Agreement”) with Affini-T. Pursuant to the Affini-T Agreement, we and Affini-T have agreed to identify, develop or optimize certain reagents using our proprietary technology for Affini-T to use such reagents to develop and commercialize gene edited TCR-based therapeutic products exclusively in the field of treatment,

prevention or diagnosis of any human cancer using products with any engineered primary TCR alpha/beta T cells and non-exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with certain other engineered immune cells worldwide. A joint steering committee was established by both parties to assign alliance managers and project leaders to oversee the collaboration activities.

Pursuant to the Affini-T Agreement, we granted Affini-T options to receive, on a pre-specified target-by-pre-specified target basis, for up to six pre-specified targets, either (i) an exclusive, royalty-bearing, sublicensable worldwide license under all of our applicable intellectual property to research, develop, manufacture, use, commercialize and otherwise exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that is directed to such pre-specified target, contains or comprises Primary TCR alpha/beta T Cells and is derived from *ex vivo application of our reagent (the "Exclusive Option") or (ii) a non-exclusive, royalty-bearing, sublicensable worldwide license under all our applicable intellectual property to research, develop, manufacture, use commercialize and otherwise exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that is directed to such pre-specified target, contains or comprises TCR natural killer ("NK") cells derived from iPSC immune cells or TCR T cells derived from donor-derived or iPSC immune cells. Affini-T can exercise its options for either an exclusive license or a non-exclusive license, or both, for each pre-specified target by providing written notice prior to the earlier of (x) the end of the Affini-T Agreement term or (y) 90 days following the filing of an IND for a licensed product directed to a pre-specified target, subject to the payment of certain fees per each option exercised. After the option exercise, Affini-T has agreed to use commercially reasonable efforts to conduct all development and commercialization activities for a licensed product, and development and commercialization of all licensed products will be at Affini-T's sole cost and expense.*

In connection with the Affini-T Agreement, we received upfront equity consideration of 719,920 shares of Affini-T's common stock with an estimated fair value of $1.3 million in June 2022. The fair value of Affini-T's shares of common stock was estimated by our management, considering the most recent third-party valuation. Affini-T has also agreed to reimburse us for expenses incurred while performing research activities under the research plans. As of June 30, 2023, we received a total of $1.9 million related to reimbursable expenses and recognized $2.3 million in accounts receivable. Additionally, we are eligible to receive (i) 933,650 shares of Affini-T's common stock upon the achievement of a regulatory milestone, which is the earlier of a submission of a drug master file to the FDA or an acceptance of an IND filing for a licensed product by the FDA, (ii) up to $18.8 million in future developmental milestone payments depending on the completion of or the number of patients dosed in, the relevant human clinical trial, or the initiation of a pivotal trial, and $40.6 million in future regulatory approval milestone payments, which include regulatory approvals in the U.S. and other markets for licensed products directed to a pre-specified target if options for both exclusive and non-exclusive licenses are exercised with respect to such target, (iii) up to $250.0 million in sales-based milestones for aggregate sales of all licensed products directed to a given pre-specified target and (iv) royalties ranging from a low-single digit to high-single digit percentage of worldwide annual net sales of licensed products.

The initial term of the Affini-T Agreement is five years from the effective date. If Affini-T exercises an Exclusive Option with respect to any pre-specified target during the initial term, the initial term will be extended by an additional five years. Following the expiration of the extended term, if any, the agreement will continue on a target-by-target basis and expire with respect to such target upon the expiration of the royalty term for all licensed products directed to such target. The Affini-T Agreement may be terminated during the term by either party for an uncured material breach by, or bankruptcy of, the other party. Additionally, Affini-T may terminate the Affini-T Agreement for convenience, in its entirety, on a research plan-by-research plan basis, on a target-by-target basis or on a licensed product-by-licensed product basis, by providing prior written notice.

We concluded that the Affini-T Agreement is in the scope of ASC 606 and that there is one performance obligation to perform research activities under the Affini-T Agreement. Exclusive and non-exclusive licenses are

optional contingent purchases that do not include significant incremental discounts, and therefore do not provide a material right.

At the effective date, the transaction price consisted of the upfront equity consideration with an estimated fair value of $1.3 million and estimated research reimbursement costs. Research reimbursement costs represent variable consideration, and our management estimates what portion to include in total consideration at the end of each reporting period. Other payments under the Affini-T Agreement, including additional equity consideration and development and regulatory milestones, also represent variable consideration, and are constrained to the extent that the inclusion of such variable consideration could result in a significant reversal of cumulative revenue in future periods. As of December 31, 2022 and June 30, 2023, additional equity consideration and future development and regulatory milestone payments were excluded from the estimated total transaction price as they were considered constrained. The transaction price is reevaluated in each reporting period and as changes in circumstances occur. We recognize revenue each reporting period based on the measure of progress using an estimated cost-based input method.

We recognized $2.6 million in collaboration revenue in the consolidated statements of operations and comprehensive loss during the year ended December 31, 2022. We recognized $2.6 million in collaboration revenue in the condensed consolidated statements of operations and comprehensive loss during the six months ended June 30, 2023. As of December 31, 2022, we recorded $1.3 million in contract assets on the consolidated balance sheet, related to services performed but not invoiced. There was no contract asset related to services performed as of June 30, 2023. As of December 31, 2022 and June 30, 2023, deferred revenue related to the Affini-T Agreement was zero and $0.4 million, respectively. In June 2023, the joint steering committee approved the budget for estimated research reimbursement costs for the Affini-T Agreement, which resulted in a $2.4 million reduction to variable consideration. The value of the transaction price allocated to the remaining unsatisfied portion of the performance obligation was approximately $3.0 million as of June 30, 2023, which we expect to recognize as revenue over the next four-to-five years.

For additional information regarding the Affini-T Agreement, please see the section titled “Business—Our License and Collaboration Agreements.”

Ionis Collaboration and License Agreement

On November 10, 2022, the effective date, we entered into a Collaboration and License Agreement (the “Ionis Agreement”) with Ionis to collaborate on drug discovery and exploratory research activities to advance new medicines using gene editing strategies, with the goal of discovering novel medicines. Pursuant to the terms of the Ionis Agreement, we granted Ionis and its affiliates a worldwide exclusive, royalty-bearing license, with the right to grant sublicenses, to use all licensed systems and licensed products in the field of *in vivo* gene editing for all therapeutic, prophylactic, palliative, and analgesic uses in humans. In connection with the Ionis Agreement, we also have the right to exercise an exclusive option to co-develop and co-commercialize certain products under a drug discovery program. A joint steering committee was established by both parties to coordinate, oversee, and monitor the research and drug discovery activities under the Ionis Agreement.

We will collaborate to discover therapeutic products under a drug discovery program and develop a drug discovery plan for each target, selected by Ionis. The target selection is divided into two waves: up to four targets in Wave 1 and up to four targets in Wave 2. For each drug discovery program, once the parties identify a development candidate that is suitable for further development, Ionis will be responsible for the development and commercialization of products resulting from such program. Per the terms of the Ionis Agreement, at any time prior to the designation of a development candidate for a drug discovery program and for any reason, Ionis may replace the collaboration target, provided such target has not previously been substituted out. Ionis may substitute (i) up to two Wave 1 targets and (ii) up to two Wave 2 targets.

The drug discovery activities for a program commence on the selection of a target and expire upon the earlier of (a) completion of all drug discovery activities for such program, (b) the fifth anniversary of the effective date and (c) selection of a development candidate for such drug discovery program. If one or more Wave 2 targets become collaboration targets as a result of the parties achieving enabled delivery and less than two years are remaining in the drug discovery term, then the term will be extended to the earlier of (i) the time that we complete all of our activities under the applicable drug discovery plan and (ii) the seventh anniversary of the effective date, subject to our consent.

We will also conduct an exploratory research program, and will jointly optimize guide RNA ("gRNA") and select delivery technologies and other activities. The exploratory research activities commence on the effective date and expire upon the earlier of (a) completion of all exploratory research activities established in the exploratory research plan, and (b) the fifth anniversary of the effective date. We have the exclusive option to co-develop and co-commercialize the licensed products under a drug discovery program (the "Co-Co Option") with Ionis. The Co-Co Option may be exercised for (a) the initial Wave 1 target ("Target 1"), (b) no more than one of the other three discovery programs for the Wave 1 targets, and (c) no more than two drug discovery programs for the Wave 2 targets that become collaboration targets. If we exercise the Co-Co Option for a particular drug discovery program, that drug discovery program will automatically be deemed a "Co-Co Program", all corresponding licensed products be deemed "Co-Co Products," we will be obligated to pay Ionis an option exercise fee, and we and Ionis will enter into a separate co-development and co-commercialization agreement. The Co-Co Option exercise fee will equal 50% of Ionis' internal costs and out-of-pocket costs incurred in the conduct of the drug discovery activities prior to the exercise of the Co-Co Option and be reduced by 50% of our corresponding costs incurred. Future development and commercialization costs will be shared equally. We may elect to reduce our cost-share percentage anywhere between 50% and 25% on a go-forward basis, provided we will continue to bear 50% of the costs of any clinical trials ongoing at the time of the election through the completion of the clinical trials. We will manufacture all licensed systems and certain components of the applicable licensed products that are needed by Ionis for use in its development activities and all of our manufactured components needed by Ionis for use in its commercialization activities. We will provide the manufactured components at a price that represents the cost of goods plus 15%.

Pursuant to the terms of the Ionis Agreement, we have also been granted an option to obtain a non-exclusive, royalty-bearing license, with the right to grant sublicenses, for certain Ionis' background technology to use in up to eight therapeutic products discovered by us in the field of *in vivo* gene editing and directed to a Collaboration Target (each such product, a "Metagenomi Product" and each such option an "Ionis IP Option"), but subject to encumbrance checks with respect to particular targets. A Collaboration Target is a target that is selected by Ionis, and, with respect to us, is not the subject of discussions with a third party, is not the subject of a contractual grant of rights to a third party nor the subject of an internal research and development program. If we exercise our Ionis IP Option, we will pay to Ionis up to several million dollars per Metagenomi Product upon achievement of certain clinical and regulatory milestones. We are also obligated to pay Ionis royalties in an amount equal to a low single-digit royalty on the net sales of the applicable Metagenomi Product on product-by-product and country-by-country basis.

In November 2022, we received an $80.0 million upfront payment from Ionis for the Wave 1 drug discovery research collaboration and selected Target 1. Ionis selected its second target ("Target 2") in Wave 1 in December 2022, and we expect Ionis will select two final additional Wave 1 targets ("Target 3" and "Target 4") within the 12 months from the effective date, as permitted under the arrangement. Ionis has an option to select up to four Wave 2 targets at any time during the drug discovery term, if (a) an IND for any licensed product directed to a Wave 1 target is filed with the applicable regulatory authority or (b) the parties achieve enabled delivery for a non-liver target under the exploratory research activities, by providing written notice and by paying a Wave 2 target selection fee of $15.0 million or $30.0 million, depending on and per the selected target.

Ionis is obligated to reimburse us for all internal costs and out-of-pocket costs incurred in the performance of the exploratory research activities, up to an aggregate of $10.0 million, which is payable in quarterly installments of $0.5 million during the exploratory research term. As of June 30, 2023, we received a total of $1.0 million related to the reimbursable expenses. We are also eligible to receive (a) up to $29.0 million in future development milestone payments for each licensed product; (b) up to $60.0 million in future regulatory milestone payments for each licensed product; (c) up to $250.0 million in sales-based milestones for each licensed product; and (d) royalties on annual net sales of licensed products from a mid-single-digit to low-teens percentage, subject to customary reductions.

The term of the Ionis Agreement will continue (i) with respect to the drug discovery programs, until the expiration of all applicable royalty terms for a licensed product, (ii) with respect to the Co-Co Programs, until the parties cease all exploitation for the Co-Co Products that are the subject to such Co-Co Program, and (iii) with respect to the Metagenomi Products, until the expiration of the royalty term for a Metagenomi Product. The royalty term ends on the latest of the following two dates: (i) the expiration of (A) the last claim of any issued and unexpired patent, or (B) a claim within a patent application that has not been pending for more than seven years from the earliest date to which the claim or applicable patent application is entitled to claim priority and which claim has not been revoked, cancelled, withdrawn, held invalid, or abandoned, or (ii) 12 years following the first commercial sale of a licensed product.

The Ionis Agreement may be terminated during the term by either party for an uncured material breach or bankruptcy by the other party. Additionally, Ionis may terminate the Ionis Agreement for convenience and without penalty, in its entirety or on a licensed product-by-licensed product basis, by providing 90 days' written notice.

We concluded that the Ionis Agreement is in the scope of ASC 606 at the effective date and until we exercise our Co-Co Option for any drug discovery program, which was determined to not be probable at the effective date and as of December 31, 2022 and June 30, 2023. We also concluded that exclusive licenses and participation in a joint steering committee are not distinct from discovery research services and should thus be combined into one performance obligation (the "discovery program"). We also concluded that exploratory research services are a separate and distinct performance obligation (the "exploratory program"). As the Ionis options for Wave 2 targets are optional purchases and do not have significant incremental discounts, as such, the options do not provide material rights.

We allocated the total estimated transaction price of $90.0 million, which consisted of an $80.0 million upfront payment received in November 2022 and a $10.0 million reimbursement for research costs, into two performance obligations, and was determined based on their estimated standalone selling prices. We concluded that future development and commercial supply agreements are at market terms, as the terms were consistent with industry standards as of the effective date. We constrain future milestone payments under the arrangement to the extent that the inclusion of such variable consideration could result in a significant reversal of cumulative revenue in future periods. We constrained all development and regulatory milestone payments at the effective date and as of December 31, 2022 and June 30, 2023. We are recognizing revenue of $80.0 million related to the discovery program and of $10.0 million related to exploratory program over the research terms using an estimated cost-based input method as a measure of progress for each obligation.

We recognized $0.1 million in collaboration revenue in the consolidated statements of operations and comprehensive loss during the year ended December 31, 2022. We recognized $8.5 million in collaboration revenue in the condensed consolidated statements of operations and comprehensive loss during the six months ended June 30, 2023, which was included in deferred revenue as of December 31, 2022. As of December 31, 2022 and June 30, 2023, deferred revenue related to the Ionis Agreement was $79.9 million and $72.5 million, respectively. The value of the transaction price allocated to the remaining performance obligations was

approximately $81.4 million as of June 30, 2023, which we expect to recognize as revenue over the next four-to-five years.

For additional information regarding the Ionis Agreement, please see the section titled “Business—Our License and Collaboration Agreements.”

Amendment to the LLC Agreement

Our LLC Agreement was amended on July 31, 2023 to provide for “catch-up” distributions for profits interests once the applicable catch-up threshold amount for such profits interests was met (the “Amendment to the LLC Agreement”).

The LLC Agreement provides each profits interest with a distribution threshold amount, which is determined on the date of issuance and represents the amount that would be distributed if, immediately after issuance, we sold all of our assets at fair market value and distributed the net proceeds in liquidation. A profits interest does not participate in our distributions until an amount equal to its distribution threshold amount has been distributed to our other members with units that either have a lower threshold amount or no threshold amount.

Once the applicable distribution threshold amount has been met for a particular profits interest, such profits interest will participate in our distributions on a pro rata basis until the catch-up threshold amount has been met. Once the catch-up threshold amount has been met, subsequent “catch-up” distributions will be made solely to holders of profits interests until such holders have received an amount equal to the amount such holders would have received had the distribution threshold not existed. Once the profits interest holders have received distributions in an amount equal to what they would have received had the distribution threshold not existed, all subsequent distributions are made on a pro rata basis with common unitholders.

The catch-up threshold amount of $11.84 per unit reflected the estimated fair value of the our common unit as of July 31, 2023, as determined by our board of managers, with input from management, and considering our most recently available third-party valuation of common units. The amendment to the LLC Agreement resulted in a change to the fair value of the profits interests and will be accounted for as a modification of the profits interests’ awards.

Reorganization

We currently operate as a Delaware limited liability company under the name Metagenomi Technologies, LLC. Prior to the completion of this offering, we intend to complete a series of transactions pursuant to which Metagenomi Technologies, LLC will merge with and into its wholly-owned subsidiary, Metagenomi, Inc., a Delaware corporation, with Metagenomi, Inc. continuing as the surviving corporation. In connection with the Reorganization (i) all of the outstanding common unitholders of Metagenomi Technologies, LLC will receive shares of common stock of Metagenomi, Inc., (ii) all of the outstanding redeemable convertible preferred unitholders of Metagenomi Technologies, LLC will receive shares of redeemable convertible preferred stock of Metagenomi, Inc. and (iii) all of the outstanding holders of profits interests in Metagenomi Technologies, LLC will receive shares of common stock or restricted common stock in Metagenomi, Inc. For more information on the Reorganization, see the section titled “Reorganization” included elsewhere in this prospectus.

Components of Results of Operations

Collaboration Revenue

We have not generated any revenue from product sales and do not expect to generate any revenue from the sale of products for the foreseeable future. Our ability to generate product revenues will depend on the

successful development and eventual commercialization of any product candidates that we identify. If we fail to complete the development of any future product candidates in a timely manner or to obtain regulatory approval for such product candidates, our ability to generate future revenue and our results of operations and financial position would be materially adversely affected.

To date, all of our revenue consists of collaboration revenue, earned from collaboration agreements with Moderna, Ionis and Affini-T. These agreements may include the following types of promised goods or services: (i) grants of licenses, (ii) performance of research and development services and (iii) participation on joint research and/or development committees. They also may include options to obtain licenses to our intellectual property or to extend the term of the research activities. Our revenues under such collaboration agreements were $0.2 million and $17.2 million for the years ended December 31, 2021 and 2022, respectively. Our revenues under collaboration agreements were $6.7 million and $20.0 million for the six months ended June 30, 2022 and 2023, respectively.

For additional information about our revenue recognition policy related to our collaboration agreements, refer to Note 2 in our audited consolidated financial statements included elsewhere in this prospectus.

Operating Expenses

Our operating expenses consist of (i) research and development expenses and (ii) general and administrative expenses.

Research and Development

The largest component of our total operating expenses since our inception has been research and development activities. Research and development expenses consist primarily of compensation and benefits for research and development employees, including unit-based compensation; the costs of acquiring research and development supplies and services; manufacturing process development costs; the research and development expenses that we share with our collaboration partners for co-development programs; other outside services and consulting costs; and allocated facilities, information technology and overhead expenses. Research and development costs are expensed as incurred.

We have not reported program costs since our inception because we have not historically tracked or recorded our research and development expenses on a program-by-program basis. We use our personnel and infrastructure resources across the breadth of our research and development activities, which are directed toward developing our platform.

We expect our research and development expenses to increase substantially for the foreseeable future as we continue to invest in research and development activities related to developing our platform, including investments in manufacturing, as we advance our programs and conduct clinical trials. The process of conducting the necessary clinical research to obtain regulatory approval is costly and time-consuming, and the successful development of our platform is highly uncertain. As a result, we are unable to determine the duration and completion costs of our research and development projects, the costs of related clinical development costs or when and to what extent we will generate revenue from the commercialization of our platform.

General and Administrative

General and administrative expenses consist primarily of personnel costs, including unit-based compensation expense and other expenses for outside professional services, including legal fees relating to intellectual

property and corporate matters; professional fees for accounting, auditing, consulting and tax services; insurance costs; administrative travel expenses; website development costs; marketing and public relations costs; and facilities, information technology and other allocated overhead costs.

We anticipate that our general and administrative expenses will increase in the future as we increase our headcount to support development of our platform and our continued research activities. We also anticipate that we will incur increased accounting, audit, legal, regulatory, compliance and director and officer insurance costs as well as investor and public relations expenses associated with being a public company. We also expect our intellectual property expenses to increase as we expand our intellectual property portfolio.

Total Other Income, Net

Total other income, net includes interest income from our investments in available-for-sale marketable securities, grant income, change in fair value of our investments in the Affini-T convertible note, preferred stock and common stock shares related to our investment in Affini-T, interest expense on the Moderna convertible note issued in November 2021, which was converted into redeemable convertible preferred units in January 2022.

Provision for Income Taxes

Metagenomi Technologies, LLC is taxed under the provisions of Subchapter K — Partners and Partnerships of the Internal Revenue Code. Under those provisions, Metagenomi Technologies, LLC does not pay federal or state corporate income taxes on its taxable income. Instead, each member includes net operating income or loss for Metagenomi on its individual return.

The wholly owned subsidiary of Metagenomi Technologies, LLC, Metagenomi Inc., is a corporation for tax purposes and is subject to income taxes. We recognized income tax expense for the year ended December 31, 2022 and for the six months ended June 30, 2022 and 2023 for domestic federal and state income taxes. After giving effect to this offering, Metagenomi, Inc. will continue as the surviving corporation.

As of December 31, 2022, we had net operating loss carryforwards of $0.02 million and $8.3 million for federal and state income tax purposes, respectively, available to reduce future taxable income, if any. The federal net operating loss carryforwards do not expire. State net operating loss carryforwards begin expiring in 2037. As of December 31, 2022, we had state research and development credit carryforwards of $2.8 million, which do not expire. As of December 31, 2022, we had no federal research and development credit carryforwards.

A valuation allowance is provided for deferred tax assets where the recoverability of the assets is uncertain. The determination to provide a valuation allowance is dependent upon the assessment of whether it is more likely than not that sufficient future taxable income will be generated to utilize the deferred tax assets. Based on the weight of the available evidence, which includes our consolidated entities' historical operating losses and forecast of future losses, we have provided a full valuation allowance against the deferred tax assets resulting from the tax loss and credits carried forward.

Utilization of the net operating loss and credit carryforwards may be subject to a substantial annual limitation due to an ownership change limitation as provided by section 382 of the Internal Revenue Code, as amended, and similar state provisions. The annual limitation may result in the expiration of net operating losses and credits before utilization. In the event that we have a change of ownership, utilization of the net operating loss and tax credit carryforwards may be restricted.

Results of Operations

Comparison of the Six Months Ended June 30, 2022 and 2023

The following table summarizes our results of operations for the six months ended June 30, 2022 and 2023 (in thousands):

	Six Months ended June 30,		Change
	2022	2023	$
Collaboration revenue	$ 6,692	$ 19,994	$ 13,302
Operating expenses:			
Research and development	16,855	42,811	25,956
General and administrative	7,834	13,084	5,250
Total operating expenses	24,689	55,895	31,206
Loss from operations	(17,997)	(35,901)	(17,904)
Other income (expense)			
Interest expense	(98)	—	98
Interest income	411	7,970	7,559
Change in fair value of long-term investments	94	2,870	2,776
Other income, net	97	15	(82)
Total other income, net	504	10,855	10,351
Net loss before provision for income taxes	(17,493)	(25,046)	(7,553)
Provision for income taxes	(1,092)	(4,095)	(3,003)
Net loss	$(18,585)	$(29,141)	$(10,556)

Collaboration Revenue

Our revenue consists of collaboration revenue recognized under our agreements with Moderna, Affini-T and Ionis. We recognize revenue as the performance obligations are satisfied. Collaboration revenue increased by $13.3 million, from $6.7 million for the six months ended June 30, 2022 to $20.0 million for the six months ended June 30, 2023. The increase in collaboration revenue for the six months ended June 30, 2023, was primarily driven by an increase in revenue of $11.1 million related to Affini-T and Ionis agreements, which we entered in June 2022 and November 2022, respectively. We did not recognize revenue under these agreements during the six months ended June 30, 2022. Collaboration revenue related to the Moderna Agreement increased by $2.2 million for the six months ended June 30, 2023 compared to the six months ended June 30, 2022, as we performed more services and our collaboration activities progressed.

The collaboration revenue for the six months ended June 30, 2022 and 2023 included the following (in thousands):

	Six Months ended June 30,		Change
	2022	2023	$
Moderna	$6,692	$ 8,891	$ 2,199
Affini-T	—	2,638	2,638
Ionis	—	8,465	8,465
Total collaboration revenue	$6,692	$19,994	$13,302

Research and Development Expenses

The following table summarizes our research and development expenses for the periods indicated (in thousands):

	Six Months ended June 30,		Change
	2022	2023	$
Personnel-related costs	$ 8,865	$16,956	$ 8,091
Laboratory materials and supplies	4,186	8,419	4,233
Facilities and overhead costs	2,780	10,048	7,268
Other research and development expenses and consulting costs	1,024	7,388	6,364
Total research and development expenses	$16,855	$42,811	$25,956

Research and development expenses increased by $26.0 million, from $16.9 million for the six months ended June 30, 2022 to $42.8 million for the six months ended June 30, 2023.

Personnel-related costs, including employee payroll and related expenses, increased by $8.1 million, including a $0.3 million increase in unit-based compensation expense, as a result of increased headcount in our research and development organization. Laboratory materials and supplies increased by $4.2 million due to significant expansion of our research and development operations. Facilities and allocated overhead costs, including rent and facilities, depreciation and amortization, repairs and maintenance and information technology-related expenses allocated to research and development increased by $7.3 million, including a $3.8 million increase in rent and facilities expenses as we entered into a new lease agreement in November 2022 that commenced in January 2023, and a $1.3 million increase in depreciation and amortization expense as we continue investing in our manufacturing facility. Other research and development and consulting costs increased by $6.4 million mainly due to external research and development costs of $4.4 million and consulting services of $1.1 million to support our research and pre-clinical development activities.

Other research and development and consulting costs include expenses related to the DT Co-Co program under the Moderna Agreement. Each quarter, a true-up is performed to calculate how much is owed by us or Moderna to equally split the costs incurred during the quarter towards the DT Co-Co program. When Moderna owes a payment to us, we account for this as a reduction of research and development expense. When we owe a payment to Moderna, we account for this as an addition to research and development expense. For the six months ended June 30, 2022 and 2023, the total cost true-ups reduced our research and development expenses by less than $0.1 million and $0.4 million, respectively. Additionally, we amortized $1.7 million and $0.4 million of the upfront $5.0 million payment received from Moderna allocated to the DT Co-Co program to offset our share of the DT Co-Co development costs for the six months ended June 30, 2022 and 2023, respectively.

General and Administrative Expenses

General and administrative expenses increased by $5.3 million, from $7.8 million for the six months ended June 30, 2022 to $13.1 million for the six months ended June 30, 2023, as we continued expanding our operations to support our business strategy and the development of therapeutic programs utilizing our metagenomics platform.

Employee payroll and related expenses increased by $2.2 million, including a $0.2 million increase in unit-based compensation expense, as a result of increase in headcount of our executives and administrative personnel. Expenses related to professional consulting services increased by $3.1 million due to increased spending on consulting and outside services to support our growing operations. Other general and administrative expenses,

including insurance, information technology, office supplies, subscriptions and licenses and other miscellaneous expenses, increased by less than $0.1 million.

Total Other Income, Net

Total other income, net, increased by $10.4 million, from $0.5 million for the six months ended June 30, 2022 to $10.9 million for the six months ended June 30, 2023.

Interest income, which includes interest income and amortization of premiums and discounts on our investments in available-for sale marketable securities, increased by $7.6 million from $0.4 million for the six months ended June 30, 2022 to $8.0 million for the six months ended June 30, 2023, due to increased investment activity and higher interest rates during the six months ended June 30, 2023.

The change in fair value of long-term investments increased by $2.8 million, from $0.1 million for the six months ended June 30, 2022 to $2.9 million for the six months ended June 30, 2023, as our investment in Affini-T was re-measured at fair value. For more details on our investment in Affini-T, refer to Note 5 in our unaudited condensed consolidated financial statements included elsewhere in this prospectus.

Provision for Income Taxes

We recognized an income tax provision as a result of our taxable income related to upfront payments received under the Moderna and Ionis agreements and the change in the net capitalization of our research and development expenses under the newly enacted Internal Revenue Code Section 174 (“Section 174”), which became effective on January 1, 2022. Section 174 changed the tax treatment of research and experimentation (R&E) expenditures, which requires the capitalization of R&E expenditures over a period of five years for R&E paid or incurred in the United States and 15 years for R&E paid or incurred outside of the United States.

For the six months ended June 30, 2022 and 2023, we recorded a provision for income taxes of $1.1 million and $4.1 million by applying the estimated annual effective tax rate to the year-to-date measure of ordinary income, respectively. The increase in the income tax provision during the six months ended June 30, 2023 is primarily due to the higher forecasted research and development spend, which results in corresponding increases to Section 174 capitalization and taxable income for the year.

Comparison of the Years Ended December 31, 2021 and 2022

The following table summarizes our results of operations for the years ended December 31, 2021 and 2022 (in thousands):

	Years ended December 31,		Change
	2021	2022	$
Collaboration revenue	$ 243	$ 17,200	$ 16,957
Operating expenses:			
Research and development	14,478	43,139	28,661
General and administrative	9,712	18,701	8,989
Total operating expenses	24,190	61,840	37,650
Loss from operations	(23,947)	(44,640)	(20,693)
Other income (expense)			
Interest expense	(302)	(98)	204
Interest income	43	3,419	3,376
Change in fair value of long-term investments	2,760	94	(2,666)
Other income, net	4	201	197
Total other income, net	2,505	3,616	1,111
Net loss before provision for income taxes	(21,442)	(41,024)	(19,582)
Provision for income taxes	—	(2,569)	(2,569)
Net loss	$(21,442)	$(43,593)	$(22,151)

Collaboration Revenue

Our revenue consists of collaboration revenue recognized under our agreements with Moderna, Affini-T and Ionis. We recognize revenue as the performance obligations are satisfied. Collaboration revenue increased by $17.0 million, from $0.2 million for the year ended December 31, 2021 to $17.2 million for the year ended December 31, 2022. The increase in collaboration revenue for the year ended December 31, 2022, was primarily driven by a $14.3 million increase in revenue related to the Moderna Agreement as our research and collaboration activities progressed and a $2.7 million increase related to the Affini-T and Ionis agreements, which we entered into in June and November 2022, respectively.

The collaboration revenue for the years ended December 31, 2021 and 2022 included the following:

	Years ended December 31,		Change
	2021	2022	$
Moderna	$243	$14,518	$14,275
Affini-T	—	2,570	2,570
Ionis	—	112	112
Total collaboration revenue	$243	$17,200	$16,957

Research and Development Expenses

The following table summarizes our research and development expenses for the periods indicated (in thousands):

	Years ended December 31,		Change
	2021	2022	$
Personnel-related costs	$ 6,962	$22,436	$15,474
Laboratory materials and supplies	3,514	10,518	7,004
Facilities and overhead costs	3,119	7,325	4,206
Other research and development expenses and consulting costs	883	2,860	1,977
Total research and development expense	$14,478	$43,139	$28,661

Research and development expenses increased by $28.7 million, from $14.5 million for the year ended December 31, 2021 to $43.1 million for the year ended December 31, 2022.

Personnel-related costs, including employee payroll and related expenses, increased by $15.5 million, including a $0.7 million increase in unit-based compensation expense, as a result of increased headcount in our research and development organization. Laboratory materials and supplies increased by $7.0 million due to significant expansion of our research and development operations. Facilities and allocated overhead, including rent, repairs and maintenance costs, common facilities and information technology related expenses allocated to research and development increased by $4.2 million as a result of the expansion of our business operations. Other research and development and consulting costs increased by $2.0 million due to increases in external consulting services to support our research and pre-clinical development activities.

Other research and development and consulting costs include expenses related to the DT Co-Co program under our collaboration agreement with Moderna. Each quarter, a true-up is performed to calculate how much is owed by us or Moderna to equally split the costs incurred during the quarter towards the DT Co-Co program. When Moderna owes a payment to us, we account for this as a reduction of research and development expense. When we owe a payment to Moderna, we account for this as an addition to research and development expense. For the years ended December 31, 2021 and 2022, the total cost true-ups reduced our research and development expenses by $0.2 million and $0.9 million, respectively. Additionally, for the year ended December 31, 2021, $5.0 million of the upfront payment received under the Moderna Agreement in November 2021 was allocated to the DT Co-Co program, which was presented as a collaboration advance on our consolidated balance sheet. For the years ended December 31, 2021 and 2022, $0.3 million and $3.5 million of this upfront payment was amortized, respectively, to offset our share of the DT Co-Co development costs.

General and Administrative Expenses

General and administrative expenses increased by $9.0 million, from $9.7 million for the year ended December 31, 2021 to $18.7 million for the year ended December 31, 2022.

Employee payroll and related expenses increased by $3.3 million, including a $0.7 million increase in unit-based compensation expense, as a result of increase in headcount of our executives and administrative personnel. Expenses related to professional consulting services increased by $4.1 million due to increased spending on consulting and outside services to support our growing operations. Other general and administrative expenses, including insurance, information technology, office supplies, subscriptions and licenses, and other miscellaneous expenses, increased by $1.6 million as we continued expanding our operations to support our business strategy and the development of therapeutic programs utilizing our metagenomics platform.

Total Other Income, Net

Total other income, net, increased by $1.1 million, from $2.5 million net income for the year ended December 31, 2021 to $3.6 million for the year ended December 31, 2022.

Interest income, which includes interest income and amortization of premiums and discounts on our investment in available-for sale marketable securities, increased by $3.4 million from $0.04 million for the year ended December 31, 2021 to $3.4 million for the year ended December 31, 2022, due to increased investment activity and higher interest rates during the year ended December 31, 2022.

The change in fair value of long-term investments decreased by $2.7 million, from $2.8 million for the year ended December 31, 2021 to $0.1 million for the year ended December 31, 2022, as our investment in the Affini-T convertible promissory note was re-measured at fair value and converted to preferred stock shares of Affini-T in March 2022. For more details on our investment in the Affini-T convertible promissory note, refer to Note 5 in our audited consolidated financial statements included elsewhere in this prospectus.

Provision for Income Taxes

We recognized an income tax provision of $2.6 million for the year ended December 31, 2022 as a result of our taxable income related to an upfront payment received under the Moderna Agreement and the change in the net capitalization of our research and development expenses under the newly enacted Internal Revenue Code Section 174 (“Section 174”), which became effective on January 1, 2022. Section 174 changed the tax treatment of research and experimentation (R&E) expenditures, which requires the capitalization of R&E expenditures over a period of five years for R&E paid or incurred in the United States and 15 years for R&E paid or incurred outside of the United States. We did not recognize income taxes for the year ended December 31, 2021.

Liquidity and Capital Resources

Sources of Liquidity

Since our inception, we have incurred significant operating losses. We have historically funded our operations primarily through sales of our redeemable convertible preferred units and convertible promissory notes, which generated approximately $351.6 million in aggregate gross proceeds. Additionally, through June 30, 2023, we received approximately $120.0 million upfront cash payments from collaboration and licensing agreements. As of June 30, 2023, we had $318.4 million in cash, cash equivalents and available-for-sale marketable securities.

Future Funding Requirements

We expect our expenses to increase substantially in connection with our ongoing activities, particularly as we advance the development of our platform. In addition, upon the completion of this offering, we expect to incur additional costs associated with operating as a public company. The timing and amount of our operating expenditures will depend largely on:

- the timing and progress of research and development, preclinical and clinical development activities;
- the number, scope and duration of clinical trials required for regulatory approval of our future product candidates;
- the costs, timing, and outcome of regulatory review of any of our future product candidates;
- the costs of manufacturing clinical and commercial supplies of our future product candidates;

- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for any of our future product candidates for which we receive regulatory approval;
- the cost of filing and prosecuting our patent applications, and maintaining and enforcing our patents and other intellectual property rights;
- our ability to maintain existing, and establish new, strategic collaborations, licensing or other arrangements, and the financial terms of any such agreements, including the timing and amount of any future milestone, royalty or other payments due under any such agreement;
- any product liability or other lawsuits related to our future product candidates;
- our implementation of various computerized informational systems and efforts to enhance operational systems;
- expenses incurred to attract, hire and retain skilled personnel;
- the costs of operating as a public company;
- our ability to establish a commercially viable pricing structure and obtain approval for coverage and adequate reimbursement from third-party and government payers;
- the extent to which we acquire or invest in businesses, products, and technologies.
- the effect of competing technological and market developments; and
- the impact of the COVID-19 pandemic, as well as other factors, including inflation, economic uncertainty and geopolitical tensions, which may exacerbate the magnitude of the factors discussed above.

As of June 30, 2023, we had $318.4 million in cash, cash equivalents and available-for-sale marketable securities. We believe that our existing cash, cash equivalents and available-for-sale marketable securities will be sufficient to fund our current operating plan for at least the next 12 months. Based on our current operating plan, we estimate that our existing cash, cash equivalents and available-for-sale marketable securities, together with the estimated net proceeds from this offering, will be sufficient to fund our projected operating expenses and capital expenditure requirements into . We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. We expect that we will require additional funding to: continue our current research development activities; develop, maintain, expand and protect our intellectual property portfolio; further develop our platform; and hire additional research, clinical and scientific personnel. If we receive regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product manufacturing, sales, marketing and distribution, depending on where we choose to commercialize our products.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, and marketing, distribution or licensing arrangements with third parties. To the extent that we raise additional capital through the sale of equity or convertible debt securities, ownership interest for existing investors may be materially diluted, and the terms of such securities could include liquidation or other preferences that adversely affect existing investors' rights as a stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include restrictive covenants that limit our ability to take specified actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or

product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings or other arrangements when needed, we may be required to delay, reduce or eliminate our product development or future commercialization efforts, or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Cash Flows

The following table summarizes our sources and uses of cash for the periods presented (in thousands):

	Years ended December 31,		Six Months ended June 30,	
	2021	2022	2022	2023
Net cash provided by (used in) operating activities	$ 24,257	$ 29,724	$ (23,067)	$ (47,087)
Net cash used in investing activities	(74,316)	(122,200)	(67,128)	(90,787)
Net cash provided by financing activities	39,922	239,594	144,304	4,256
Net (decrease) increase in cash, cash equivalents and restricted cash	$(10,137)	$ 147,118	$ 54,109	$(133,618)

Cash Flows from Operating Activities

Net cash used in operating activities for the six months ended June 30, 2022 was $23.1 million. This is primarily due to our net loss for the period of $18.6 million, decreased by net non-cash charges of $2.5 million and increased by a net reduction of $7.0 million in our net operating assets and liabilities. The net non-cash charges primarily consisted of $0.9 million in unit-based compensation expense, a $0.6 million non-cash lease expense and $0.5 million in depreciation and amortization expense. The net change in our operating assets and liabilities primarily consisted of a $8.1 million decrease in deferred revenue and collaboration advances as we recognized collaboration revenue under the Moderna agreement, a $0.8 million increase in prepaid expenses and other current assets, partially offset by a $0.7 million increase in income tax payable, a $0.5 million increase in accounts payable due to the timing of payments to our vendors, a $0.5 million increase in accrued expenses and other current liabilities.

Net cash used in operating activities for the six months ended June 30, 2023 was $47.1 million. This was primarily due to our net loss of $29.1 million, increased by net non-cash income of $2.8 million and increased by a net reduction of $15.1 million in our net operating assets and liabilities. The net non-cash charges consisted of a $4.5 million credit related to amortization of the discounts on available-for-sale marketable securities, $2.9 million for the change in fair value of our investments in Affini-T and $0.5 million in amortization of non-cash collaboration revenue related to the Affini-T Agreement, all partially offset by $2.0 million non-cash lease expense, $1.9 million in depreciation and amortization expense and $1.2 million in unit-based compensation expense. The net change in our operating assets and liabilities primarily consisted of a $16.2 million decrease in deferred revenue and collaboration advances as we recognized revenue under our collaboration agreements, and a $2.3 million increase in accounts receivable related to the Affini-T Agreement, a $0.7 million decrease in operating lease liabilities due to recurring payments under the existing lease agreements, all partially offset by a $1.3 million decrease in contract assets related to the Affini-T Agreement, a $1.2 million increase in income tax payable due to additional tax expense and the timing of tax payments, a $0.9 million increase in accounts payable due to the timing of payments to our vendors and a $0.7 million increase in other non-current liabilities.

Net cash provided by operating activities for the year ended December 31, 2021 was $24.3 million. This is primarily due to our net loss for the period of $21.4 million adjusted by net non-cash charges of $0.6 million

and a net change of $46.3 million in our net operating assets and liabilities. The non-cash charges primarily consisted of $2.8 million for the change in fair value of our investment in the Affini-T convertible note and $0.9 million for non-cash lease expense. The changes in our net operating assets and liabilities primarily consisted of a $44.2 million increase in deferred revenue primarily due to the receipt of an upfront payment under the Moderna Agreement, a $1.9 million increase in accrued expenses and other current liabilities and a $0.7 million increase in accounts payable, partially offset by a $0.5 million increase in prepaid expenses and other current assets.

Net cash provided by operating activities for the year ended December 31, 2022 was $29.7 million. This was primarily due to our net loss of $43.6 million, adjusted by net non-cash charges of $3.8 million and a net change of $69.5 million in our net operating assets and liabilities. The non-cash charges primarily consisted of $2.0 million of unit-based compensation expense, $1.7 million of depreciation expense and $1.3 million for non-cash lease expense, reduced by $1.1 million for the amortization of the discount on our investment in available-for-sale marketable securities. The changes in our net operating assets and liabilities primarily consisted of a $65.7 million increase in deferred revenue primarily due to the receipt of an upfront payment under the Ionis Agreement, a $4.5 million increase in accrued expenses and other current liabilities, a $1.5 million increase in income tax payable and a $1.0 million increase in other non-current liabilities, partially offset by an increase of $2.5 million in prepaid expenses and other current assets and an increase of $1.3 million in contract assets.

Cash Flows from Investing Activities

Net cash used in investing activities for the six months ended June 30, 2022 was $67.1 million, which consisted of $88.5 million of purchases of available-for-sale marketable securities and $7.2 million of purchases of property and equipment, both partially offset by $28.5 million in proceeds from maturities and sales of available-for-sale marketable securities.

Net cash used in investing activities for the six months ended June 30, 2023 was $90.8 million, which consisted of $169.0 million of purchases of available-for-sale marketable securities and $5.8 million of purchases of property and equipment, both partially offset by $84.0 million in proceeds from maturities and sales of available-for-sale marketable securities.

Net cash used in investing activities for the year ended December 31, 2021 was $74.3 million, which consisted of $69.3 million of purchases of available-for-sale marketable securities, $2.9 million of purchases of property and equipment and $2.2 million investment in preferred stock of ViTToria Biotherapeutics, Inc.

Net cash used in investing activities for the year ended December 31, 2022 was $122.2 million, which consisted of $214.9 million of purchases of available-for-sale marketable securities, $14.0 million of purchases of property and equipment, partially offset by $106.6 million in proceeds from maturities and sales of available-for-sale marketable securities.

Cash Flows from Financing Activities

Net cash provided by financing activities for the six months ended June 30, 2022 was $144.3 million, which consisted of net cash proceeds received from the issuance of Series B redeemable convertible preferred units.

Net cash provided by financing activities for the six months ended June 30, 2023 was $4.3 million, which primarily consisted of net cash proceeds from the issuance of Series B-1 redeemable convertible preferred units.

Net cash provided by financing activities for the year ended December 31, 2021 was $39.9 million, which consisted of $30.0 million net cash proceeds received from the issuance of a convertible note and $9.9 million net cash proceeds from our issuance of Series A-5 preferred units.

Net cash provided by financing activities for the year ended December 31, 2022 was $239.6 million, which consisted of net cash proceeds from our issuance of Series B and Series B-1 preferred units.

Contractual Obligations and Commitments

Leases

As of December 31, 2022, our future remaining operating lease payments were $3.3 million within the next twelve months and $23.9 million for the remainder of the leases' terms, with respect to leases already commenced as of such date. In addition, we entered into a lease in November 2022 with a lease commencement date in January 2023, for which we are obligated to make lease payments of $2.9 million in the next twelve months and $46.2 million through March 2031.

As of June 30, 2023, we leased our office and laboratory space under three lease agreements with a weighted-average remaining lease term of 7.6 years. Remaining lease obligations under our non-cancellable leases were $73.9 million as of June 30, 2023, including $3.2 million payable through December 31, 2023 and $70.7 million for the reminder of the leases' terms.

Refer to Note 10 in our audited consolidated financial statements and Note 8 in our unaudited condensed consolidated financial statements included elsewhere in this prospectus for more information on our lease obligations.

Recently Issued Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position, results of operations or cash flows is disclosed in Note 2 to our consolidated financial statements included elsewhere in this prospectus.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with generally accepted accounting principles ("GAAP"). The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported expenses incurred during the reporting periods.

On an ongoing basis, we evaluate our estimates and judgments, including but not limited to those related to revenue recognition under our collaboration agreements, accrued research and development costs, the fair value of common units and unit-based compensation expense, the valuation of deferred tax assets, and uncertain income tax positions. These estimates and assumptions are monitored and analyzed by us for changes in facts and circumstances, and material changes in these estimates and assumptions could occur in the future. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Changes in estimates are reflected in reported results for the period in which they become known. Actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 2 to our audited consolidated financial statements and unaudited condensed consolidated financial statements included elsewhere in this prospectus, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our financial statements.

Collaboration Arrangements and Revenue Recognition

We apply judgment to determine whether a collaboration agreement is within the scope of revenue recognition, Accounting Standard Codification Topic 606, *Revenue from Contract with Customers*, or other accounting guidance at the effective date and throughout the term of the agreement. We perform the following five steps in determining the appropriate amount of revenue to be recognized as we fulfill our obligations under each of these agreements: 1) identification of the promised goods and services in the contract; 2) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; 3) measurement of the transaction price, including any constraint on variable consideration; 4) allocation of the transaction price to the performance obligations; and 5) recognition of revenue when, or as, we satisfy each performance obligation.

Promises in collaboration agreements may include (i) grants of licenses, (ii) performance of research and development services, and (iii) participation on joint research and/or development committees. They also may include options to obtain licenses to our intellectual property or to extend the term of the research activities. We assess whether each promise is a distinct performance obligation and should be accounted for separately or should be combined with other promises into one performance obligation. Judgment is required to determine whether the license to intellectual property is distinct from the research and development services or participation on steering committees. The event-based milestone payments, royalties and cost reimbursements represent variable consideration. We evaluate the probability that the event-based milestones will be achieved and estimates the amount to be included in the transaction price using the most likely amount method. We include cost reimbursement in the transaction price using the expected value method. Unlike other contingency payments, sales-based milestones and royalties are not included in the transaction price based on estimates at the inception of the contract, but rather, are included when sales or usage occur.

To estimate the transaction price, we include upfront payment and variable consideration, such as research and development milestones, reimbursement for our services, that is subject to a constraint. Amounts of variable consideration are included in the transaction price to the extent that it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur and when the uncertainty associated with the variable consideration is subsequently resolved. These estimates are re-assessed each reporting period as required.

After we estimate the transaction price, we allocate it to the identified performance obligations based on the standalone selling price (“SSP”) of each distinct performance obligation. Judgment is required to determine the SSP. In instances where the SSP is not directly observable, such as when a license or service is not sold separately, the SSP is determined using information that may include market conditions and other observable inputs. When licenses are combined with other promises, we utilize our judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time. If we conclude over time, we recognize revenue based on the measure of progress using an estimated cost-based input method each reporting period. In applying the cost-based input method, we measure actual costs incurred relative to budgeted costs to fulfill our performance obligation. These budgeted costs consist of our employee full-time equivalent hours plus allowable external (third-party) costs incurred. Management applies considerable judgment in estimating expected costs as such costs are key inputs when applying the cost-based input method. We recognize revenue based on actual costs incurred as a

percentage of total budgeted costs as we complete a performance obligation applied to the transaction price. A significant change in the estimate of expected costs for the remainder of a contract term could have a material impact on revenue recognized, including the possible reversal of previously recognized revenue, at each reporting period, as well as a related impact on contract assets and liabilities.

Accrued Research and Development Expenses

Research and development expenses are recognized as services are performed and as costs occur. Research and development expense accruals are estimated based on the level of services performed, progress of the work orders, including the phase or completion of events, and contracted costs. We make significant judgments and estimates in determining the accrual balance at each reporting period. If the actual timing of the performance of services or the level of effort varies from the original estimates, we will adjust the accrual accordingly. To date, there have been no material differences between estimates of such expenses and the amounts actually incurred.

Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are capitalized and recorded in prepaid expenses and other current assets, and then expensed as the related goods are delivered or the services are performed.

Unit-Based Compensation Expense

Unit-based compensation expense related to the profits interests granted to employees, consultants and our board of managers members is measured at the grant date based on the fair value of the profits interests. Compensation expense for those awards is recognized over the requisite service period, which is generally the vesting period. We use the straight-line method to record the expense of awards with service-based vesting conditions. We account for forfeitures as they occur.

We use the Black-Scholes option-pricing model to determine the fair value of profits interests. The following summarizes the inputs used:

Common Unit Fair Value — See the subsection titled "—Determination of Fair Value of Common Units" below.

Expected Volatility — Expected volatility is estimated by studying the volatility of the prices of shares of common stock of comparable public companies for similar terms.

Expected Term — Expected term represents the period that our profits interests are expected to be outstanding and expected exit/liquidation term.

Risk-Free Interest Rate — The risk-free interest rate is based on the U.S. Treasury zero-coupon bonds issued in effect at the time of grant for periods corresponding with the expected term of the option.

Expected Dividend — The Black-Scholes valuation model calls for a single expected dividend yield as an input. To date, we have not declared or paid any dividends.

We recorded unit-based compensation expense of $0.4 million and $2.0 million for the years ended December 31, 2021 and 2022, respectively. We recorded unit-based compensation expense of $0.9 million and $1.2 million for the six months ended June 30, 2022 and 2023, respectively. As of June 30, 2023, there was $16.8 million of total unrecognized unit-based compensation expense, which we expect to recognize over a remaining weighted-average period of 3.3 years. We expect to continue to grant these awards in the future, and to the extent that we do, our unit-based compensation expense recognized in future periods will likely increase.

The intrinsic value of all outstanding profits interests as of June 30, 2023 was $ million based on the assumed initial public offering price of $ per share, which is the estimated midpoint of the price range set forth on the cover page of this prospectus, of which approximately $ million related to vested profits interests and approximately $ million related to unvested profits interests.

Profits Units Grants

The following table summarizes by grant date the number of profits interests granted from January 1, 2022, the per unit participating threshold amount and the estimated fair value of the common unit on each grant date:

Grant date	Number of profits interests granted	Threshold amount per unit	Estimated fair value per common unit
April 25, 2022	941,755	$ 3.20	$ 3.20
May 26, 2022	1,224,466	$ 3.20	$ 3.20
July 12, 2022	78,135	$ 3.20	$ 3.20
October 28, 2022	519,000	$ 3.20	$ 3.20
March 24, 2023*	462,460	$ 5.75	$ 6.93
June 25, 2023*	283,330	$ 7.40	$ 10.21
June 26, 2023*	1,247,193	$ 7.40	$ 10.26

* The fair value per common unit for grants during the 2023 fiscal year was interpolated between the valuation reports' dates in connection with a retrospective fair value assessment for accounting purposes.

Determination of Fair Value of Common Units

As there has been no public market for our common units to date, the estimated fair value of our common units has been determined by our board of managers as of the date of each award grant with input from management, considering our most recently available third-party valuations of common unit, and our board of managers' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation ('the Practice Aid").

For valuations performed prior to December 20, 2022, in accordance with the Practice Aid, we determined the option-pricing method ("OPM") was the most appropriate method for determining the fair value of our common unit based on our stage of development and other relevant factors, which used a market approach to estimate our enterprise value. Within the OPM framework, the backsolve method for inferring the total equity value implied by a recent financing transaction involves the construction of an allocation model that takes into account our capital structure and the rights, preferences and privileges of each class of unit then assumes reasonable inputs for the other OPM variables (expected time to liquidity, volatility and risk-free rate). The total equity value is then iterated in the model until the model output value for the equity class sold in a recent financing round equals the price paid in that round. The OPM is generally utilized when specific future liquidity events are difficult to forecast (i.e., the enterprise has many choices and options available), and the enterprise's value depends on how well it follows an uncharted path through the various possible opportunities and challenges. In determining the estimated fair value of the common stock, our board of managers also considered the fact that the stockholders could not freely trade the common stock in the public markets.

Accordingly, we applied discounts to reflect the lack of marketability of its common stock based on the weighted-average expected time to liquidity. The estimated fair value of the common stock at each grant date reflected a non-marketability discount partially based on the anticipated likelihood and timing of a future liquidity event.

For valuations performed after December 20, 2022, in accordance with the Practice Aid, we determined the hybrid method was the most appropriate method for determining the fair value of our common unit based on our stage of development and other relevant factors. The hybrid method is a probability-weighted expected return method ("PWERM"), where the equity value in one or more scenarios is calculated using an OPM. The PWERM is a scenario-based methodology that estimates the fair value of common unit based upon an analysis of future values for the company, assuming various outcomes. The common unit value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of members' units. The future value of the common unit under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common unit. A discount for lack of marketability of the common unit is then applied to arrive at an indication of value for the common unit. In addition to considering the results of independent third-party valuations, our board of managers considered various objective and subjective factors to determine the thresholds for the profits interests as of each grant date, including:

- the prices at which we sold shares of redeemable convertible preferred units and the superior rights and preferences of the redeemable convertible preferred units relative to our common units at the time of each grant;
- the progress of our research and development programs;
- milestones achieved by us;
- the state of the industry and the economy;
- our stage of development and commercialization and our business strategy;
- external market conditions affecting the biopharmaceutical industry and trends within the biopharmaceutical industry;
- our financial position, including cash on hand, and our historical and forecasted performance and operating results;
- the lack of an active public market for our common stock and our preferred stock;
- the likelihood of achieving a liquidity event, such as an initial public offering ("IPO"), or our sale in light of prevailing market conditions; and
- the analysis of IPOs and the market performance of similar companies in the biopharmaceutical industry.

The assumptions underlying these valuations are highly complex and subjective and represent management's best estimates, which involved inherent uncertainties and the application of management's judgment. As a result, if we had used significantly different assumptions or estimates, the fair value of our common unit and our unit-based compensation expense could be materially different.

Once a public trading market for our common stock has been established in connection with the completion of this offering, it will no longer be necessary for our board of managers to estimate the fair value of our common unit in connection with our accounting for granted profits interests and other such awards we may grant, as the fair value of our common unit or stock will be determined based on the quoted market price of our common unit or stock.

Income Taxes

We are taxed under the provisions of Subchapter K - Partners and Partnerships of the Internal Revenue Code. Under those provisions, we do not pay federal or state corporate income taxes on our taxable income. Instead, each member includes net operating income or loss for us on its individual tax return.

Metagenomi, Inc., our wholly-owned subsidiary, accounts for income taxes using the asset and liability method. We recognize deferred tax assets and liabilities for the expected future tax consequences of events that have been included in our audited consolidated financial statements and unaudited condensed consolidated financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the accounting and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. A valuation allowance is established for deferred tax assets for which it is more likely than not that some portion or all of the deferred tax assets will not be realized. We assess the need for a valuation allowance against our deferred tax assets based on all available evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, results of recent operations, and our historical earnings experience by taxing jurisdiction. Significant judgment is required in making this assessment.

Tax benefits related to uncertain tax positions are recognized when it is more likely than not that a tax position will be sustained during an audit. Uncertain tax positions are recorded based upon certain recognition and measurement criteria. Significant judgment is required in making this assessment, and, therefore, we re-evaluate uncertain tax positions and consider various factors, including, but not limited to, changes in tax law, the measurement of tax positions taken or expected to be taken in tax returns, and changes in facts or circumstances related to a tax position. We adjust the amount of the liability to reflect any subsequent changes in the relevant facts and circumstances surrounding the uncertain tax positions.

Off-Balance Sheet Arrangements

During the periods presented we did not have, nor do we currently have, any off-balance sheet arrangements as defined in the rules and regulations of the SEC.

Quantitative and Qualitative Disclosures About Market Risks

Interest Rate Risk

The primary objectives of our investment activities are to ensure liquidity and to preserve capital. We are exposed to market risks related to changes in interest rates of our cash equivalents and available-for-sale marketable securities. However, due to the nature of these cash equivalents and available-for-sale marketable securities, we do not believe that a hypothetical 10% increase or decrease in interest rates during any of the periods presented would have had a material effect on our audited consolidated financial statements and unaudited condensed consolidated financial statements included elsewhere in this prospectus.

Effects of Inflation

Inflation generally affects us by increasing our cost of labor and research and development costs. We do not believe that inflation had a material effect on our business, results of operations, or financial condition, or on our audited consolidated financial statements and unaudited condensed consolidated financial statements included elsewhere in this prospectus.

Emerging Growth Company Status

We qualify as an “emerging growth company,” as defined in the JOBS Act. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include: (i) being permitted to present only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced “Management’s Discussion and Analysis of Financial Condition and Results of Operations” disclosure in this prospectus; (ii) reduced disclosure about our executive compensation arrangements; (iii) not being required to hold advisory votes on executive compensation or to obtain stockholder approval of any golden parachute arrangements not previously approved; (iv) an exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act of 2002; and (v) an exemption from compliance with the requirements of the Public Company Accounting Oversight Board regarding the communication of critical audit matters in the auditor’s report on the financial statements.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of $1.235 billion or more; (ii) the last day of our fiscal year following the fifth anniversary of the date of the completion of this offering; (iii) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the SEC. We may choose to take advantage of some but not all of these exemptions. We have taken advantage of reduced reporting requirements in this prospectus. Accordingly, the information contained herein may be different from the information you receive from other public companies in which you hold stock. Additionally, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption and, therefore, while we are an emerging growth company we will not be subject to new or revised accounting standards at the same time that they become applicable to other public companies that are not emerging growth companies. As a result of this election, our audited consolidated financial statements and unaudited condensed consolidated financial statements may not be comparable to those of other public companies that comply with new or revised accounting pronouncements as of public company effective dates. We may choose to early adopt any new or revised accounting standards whenever such early adoption is permitted for private companies.

BUSINESS

Overview

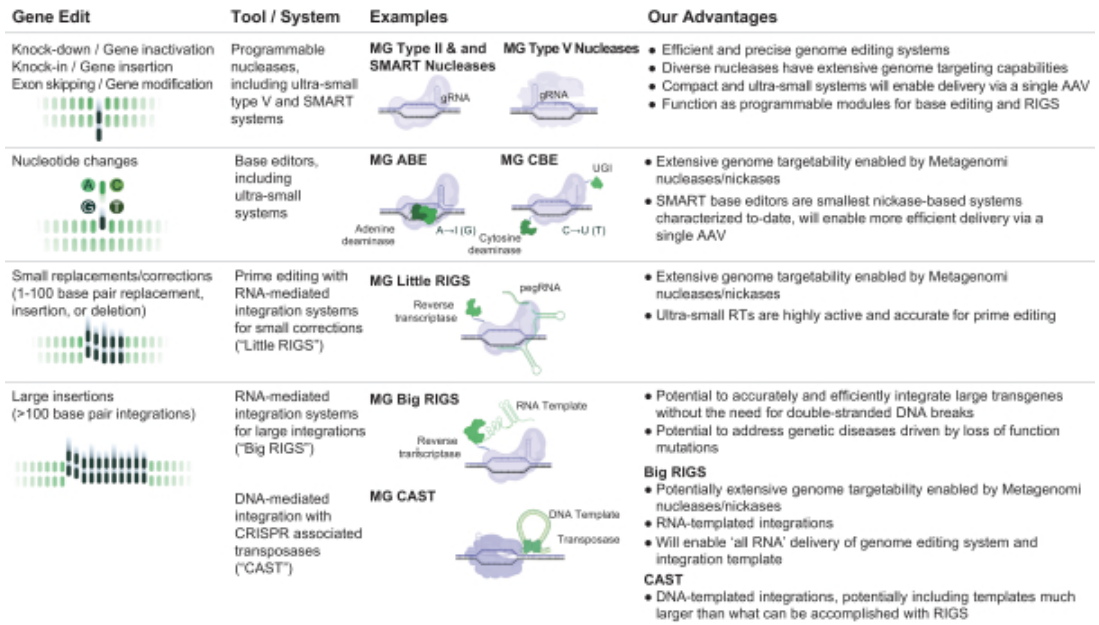
We are a precision genetic medicines company committed to developing curative therapeutics for patients using our proprietary, comprehensive metagenomics-derived genome editing toolbox. Genetic diseases are caused by a diverse set of mutations that have been largely inaccessible by genome engineering approaches to date. Genetic mutations are seen in a variety of forms, including deletions, insertions, single-base-pair changes and sequence repeats, and are found throughout the genome and across a variety of different cell types, tissues, and organ systems. Additionally, many diseases lack a genetic origin but have the potential to be effectively and permanently addressed through genome editing. We are harnessing the power of metagenomics, the study of genetic material recovered from the natural environment, to unlock four billion years of microbial evolution to discover and develop a suite of novel editing tools capable of correcting any type of genetic mutation found anywhere in the genome. Our comprehensive genome editing toolbox includes programmable nucleases, base editors, and RNA and DNA-mediated integration systems (including prime editing systems and clustered regularly interspaced short palindromic repeat ("CRISPR")-associated transposases ("CASTs")). We believe our diverse and modular toolbox positions us to access the entire genome and select the optimal tool to unlock the full potential of genome editing for patients.

The company was founded by pioneers in the field of metagenomics, a powerful science that allows us to tap into the diversity of microbial life on this planet. The metagenomics process starts by collecting samples from microbe-rich ecosystems ranging from simple home gardens to extreme locations such as hydrothermal vents below the ocean. We then extract the DNA from these environmental samples and deeply sequence them to fully reconstruct the genomes of the resident microbes. Each sample may include thousands of distinct genomes from previously unknown organisms revealing novel cellular machinery that we utilize as building blocks for our editing systems. Using high-throughput screening, artificial intelligence ("AI"), and proprietary algorithms, we rapidly mine through billions of novel proteins from our genome-resolved metagenomics database to create genome editing tools. To date, we have analyzed over 380 trillion base pairs of DNA sequencing data, predicted over 6 billion proteins, including over 150 million CRISPR-associated ("Cas") proteins, and identified over 1.4 million CRISPRs, which we estimate has resulted in the identification of over 20,000 novel genome editing systems. We have assembled extensive libraries of millions of nucleases, deaminases, reverse transcriptases ("RTs") and over one thousand CASTs. Our platform enables us to rapidly and effectively find, screen, and select tools with the highest targetability, specificity, and efficiency in order to develop them into genetic medicines. The iterative nature of our process, underpinned by AI, allows us to continuously push the boundaries of innovation.

Our proprietary toolbox of editing systems

We have developed an expansive and modular toolbox of next-generation genome editing systems that will allow us to interact with the human genome in a site-specific manner, where each tool can be matched to specific disease targets. Figure 1 summarizes our diverse and versatile toolbox of different editing capabilities with the potential to address the full spectrum of genetic diseases.

Figure 1. Our Toolbox.



Our programmable nucleases are the backbone of our broad set of genome editing tools. These novel nucleases including type II and type V Cas nucleases, of which some are ultra-small systems that we call SMall Arginine-Rich sysTems ("SMART") nucleases, have unique targeting abilities and can be programmed by guide RNAs ("gRNAs") to target and cut at specific locations in any genome sequence. Targeted genomic breaks trigger DNA repair pathways that can be used for genome editing, for example, to integrate a gene at a target site (knock-in) or for gene inactivation (knock-down).
Our toolbox contains thousands of CRISPR nucleases with diverse abilities to target different parts of the genome, allowing us to potentially select the ideal nuclease for targeting any given gene in a site-specific manner and overcome a major limitation of first-generation CRISPR/Cas9 systems.

We also modify our nucleases to either nick the genome (i.e., a nickase that cuts one strand of the DNA) or to simply bind to target sites (i.e., a nuclease dead variant). These capabilities (searching, cutting, nicking, and binding) can be leveraged as a chassis by adding on additional effector enzymes to create base editors for single nucleotide changes, RNA-mediated integration systems for large integrations ("Little RIGS") (prime editing with small RNA-templated genomic replacements/corrections), and RNA-mediated integration systems for large integrations ("Big RIGS") for large RNA-templated gene integrations. Using modular engineering, we match nickases with deaminases and RTs for base editing and RNA-mediated integration systems ("RIGS"), respectively. Furthermore, nucleases can be engineered by swapping the search modules of the enzyme to expand the targetability of the chassis, which is critical for site-specific genomic modifications. Given the measured targeting density of our toolbox, we believe that essentially any codon in the human genome could be addressed with our gene editing systems.

Our highly active nucleases have gone through extensive preclinical evaluation for both *in vivo* and *ex vivo* applications, with demonstration of broad potency of these systems across human primary cells, mouse, and nonhuman primate ("NHP") models. Our base editors, RIGS, and CAST systems have demonstrated activity across various cell-based models. In addition to evaluating system activity, we have undertaken detailed characterization of guide-specific on- and off-target effects. We routinely identify guides that have no or minimal verifiable off-target editing, thus overcoming another limitation of first-generation CRISPR/Cas9 systems.

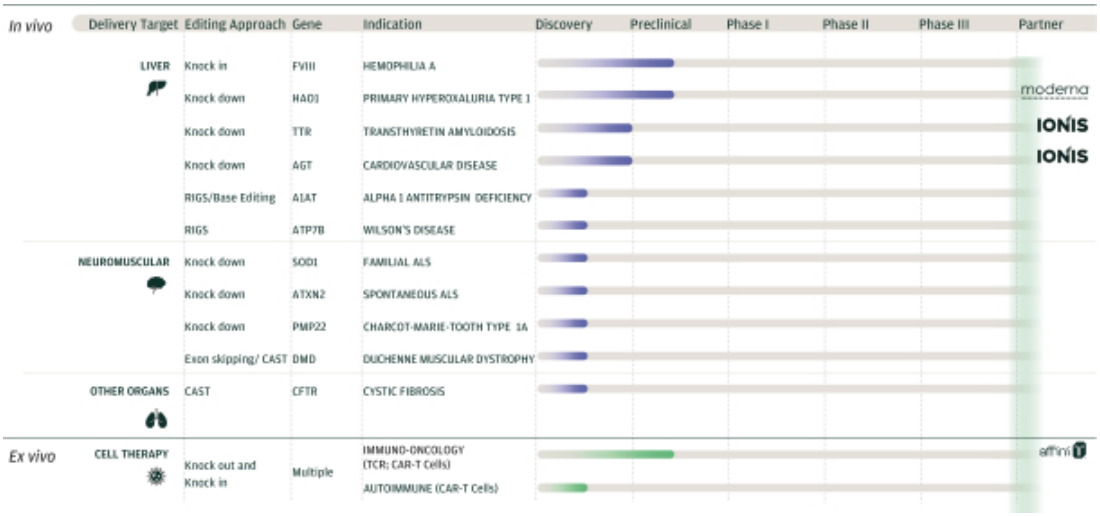
In addition to overcoming the activity, targetability, and specificity limitations of first-generation systems, our nuclease toolbox was designed to have broad compatibility with viral and nonviral delivery technologies. This compatibility is accomplished by having a variety of nuclease and gRNA structures, which range in terms of their size and biochemistry. For example, small guides for some type V Cas systems streamline manufacturing for delivery by lipid nanoparticle ("LNP") approaches, and SMART nickases can be used to construct base editors that are small enough to fit within the packaging limitations of adeno-associated viruses ("AAV"). SpCas9, which is currently used in most base editing applications, is roughly three times the size of some of the smallest SMART nickases and cannot be efficiently packaged into a single AAV. Combined, we believe these features will facilitate delivery of our genome editing tools to previously inaccessible tissue types and organ systems.

While nucleases, base editors, and prime editors can precisely address a wide variety of genomic modifications required to treat disease, the fact that many diseases are caused by a multitude of mutations across a gene means that a diverse set of editing tools are required to fully address these patient populations. The integration of a complete and functional gene through targeted genome editing may provide a way in which every patient with a given disease could potentially be treated by a single genetic medicine. Big RIGS and CASTs are novel genome editing systems that are under development to achieve what has been a major challenge for the genome editing field — large, targeted genomic integrations. Initial preclinical readouts conducted in mammalian cells indicate that these systems could potentially have a major impact on how diseases caused by loss-of-function mutations, the most common cause of genetic diseases, can be addressed through genome editing.

Therapeutic translation roadmap and initial programs

We are taking a stepwise approach deploying our genome editing toolbox to develop potentially curative therapies for patients. Our lead programs are selected to both address important diseases and to establish new standards in targetability, precision, efficiency, and scope of editing capabilities. Figure 2 summarizes the portfolio of programs that we and our partners are advancing, as we aim to match the optimal genome editing tools for each indication. Each of these indications were chosen based on our conviction in the underlying biology, existence of validating preclinical and clinical data, availability of pharmacodynamic and translational tools to assess early proof-of-concept, relevant value supporting outcome measures, and ongoing clinical unmet need. While we do not currently have any approved products and all of our product candidates are preclinical, our lead programs capture an ever-growing set of translational learnings and insights that will inform and accelerate future programs.

Figure 2. Therapeutic Translation.



Hemophilia A—novel, durable , knock-in approach for expression of Factor VIII

Hemophilia A is the most common X-linked inherited bleeding disorder and is caused by mutations in the Factor VIII (“FVIII”) gene leading to loss of functional FVIII protein that impacts the body’s ability to form normal clots in response to injury. FVIII is normally produced in the liver within sinusoidal endothelial cells and is then secreted into the bloodstream where it acts as a cofactor for the catalytic activation of Factor X in the clotting pathway. The lack of functional FVIII disrupts the normal clotting cascade and predisposes patients to increased risk of bleeding, either spontaneously or in response to injury or surgery. Repeated bleeding episodes in joints or soft tissues can lead to progressive joint damage, inflammation, pain, and mobility impairment. Intracranial bleeding is of greatest concern as this can be rapidly fatal or lead to major morbidity.

The standard of care for patients with severe hemophilia A, involves lifelong repeated intravenous (“IV”) infusions of recombinant FVIII preparations prophylactically and in response to bleeding events. The major limitation of this approach is fluctuating FVIII activity levels, with trough values that can still result in breakthrough microscopic and macroscopic bleeding events, particularly within sensitive and previously damaged joints. Additionally, frequent FVIII infusions are inconvenient, which can be associated with suboptimal compliance, and in some patients result in inhibitor formation (antibodies against FVIII) that compromise efficacy. More recently, emicizumab, a bispecific antibody, has been approved for hemophilia A in the United States. Valoctocogene roxaparvovec, the first hemophilia A gene therapy, was conditionally approved for use in Europe in August 2022 and was approved in the United States in June 2023. This genetic medicine delivers a FVIII gene construct to the liver using an AAV vector; however, longitudinal clinical data has demonstrated that FVIII levels drop over time. Importantly, AAV gene therapy is also not a feasible treatment approach for infants or children due to the high degree of liver growth during pre-adulthood that would dilute out the episomal FVIII levels during progressive rounds of liver cell division.

Rather than provide the FVIII gene in an episomal location, which risks dilution from cell division or cell death as well as episomal transcriptional silencing, our approach is to insert a FVIII DNA cassette into a "safe harbor location," within an intron of the albumin gene that is not expected to have deleterious effects. FVIII expression is then driven off the strength of the native albumin promoter. This approach has previously been demonstrated in preclinical studies to lead to therapeutically relevant expression of a different clotting factor (Factor IX) with negligible impact to systemic circulating albumin levels. Our FVIII knock-in approach is

designed to provide stable expression and clinically relevant circulating levels of FVIII, even at low integration rates because of the strength of the albumin promoter. We have demonstrated the feasibility of the FVIII gene knock-in approach in mice with several mouse specific guides and different FVIII DNA donor cassettes, with integration of the FVIII gene leading to FVIII mRNA expression and therapeutically relevant levels of FVIII protein in the blood. We are finalizing donor DNA cassette optimization and performing our next set of NHP studies to demonstrate and quantify FVIII integration and protein expression. In parallel, we are manufacturing mRNA, gRNA, AAV and LNP to support future IND enabling studies. We expect to select a final development candidate in the first half of 2024 and initiate IND-enabling GLP studies thereafter.

Primary Hyperoxaluria, Type 1 ("PH1")—a durable knockdown of HAO1 for substrate reduction therapy

PH1 is a rare autosomal recessive metabolic disease arising from loss of function mutations in the alanine-glyoxylate aminotransferase ("AGXT") gene that encodes alanine glyoxylate aminotransferase. This enzyme is found in peroxisomes of the liver where it catalyzes the conversion of glyoxylate to glycine and pyruvate. Lack of functional AGXT leads to an accumulation of glyoxylate substrate, which is then converted to oxalate and excreted in the kidney. The excess urinary oxalate forms an insoluble complex with urinary calcium that leads to the production of calcium oxalate crystal precipitates. This pathologic process results in the formation of repeated calcium oxalate urolithiasis and nephrolithiasis, which in turn leads to obstructive uropathy, inflammation, fibrosis, tubular toxicity, and progressive loss of kidney function. PH1 is a serious disease that causes kidney failure. More than 70% of individuals with PH1 mutations will develop end-stage renal disease, with a median age in young adulthood.

Until recently, the standard of care for treating PH1 was primarily supportive in nature, with hydration and diuretics used to reduce urinary oxalate concentration, pyridoxine (vitamin B6) to enhance residual function of alanine glyoxylate aminotransferase catalytic activity, and hemodialysis once renal function progressed to end stage. More recently, the standard of care has been updated to include treatment with lumasiran, a small interfering RNA ("siRNA") therapeutic approved in adults and children with PH1 that acts to reduce the levels of urinary oxalate. Using a therapeutic approach known as substrate reduction therapy, lumasiran targets mRNA from a separate gene, HAO1, that encodes glycolate oxidase ("GO"). Lumasiran has been generally well tolerated in clinical studies of adults and children with PH1 but as a siRNA therapy, it requires repeat subcutaneous administration indefinitely in order to maintain its effect.

The goal of our genome editing approach is to durably knock down HAO1 resulting in stable and permanent reduction of oxalate levels to effect a lifelong benefit. We have performed nuclease and guide screening to select an optimal nuclease and gRNA combination. Along with our partner ModernaTX, Inc. ("Moderna") we have achieved preclinical proof-of-concept in an AGXT knock-out mouse which is an accepted disease model of PH1. We are in the final stages of confirming the candidate to take into NHP studies and are scheduled to begin NHP studies in 2023 to support final development candidate selection thereafter.

Transthyretin Amyloidosis—a single treatment to knockdown TTR gene expression

Transthyretin amyloidosis is a disease of misfolded and aggregated transthyretin ("TTR") protein that can deposit in tissues causing organ dysfunction, primarily in the heart and/or peripheral nerves. The TTR protein is normally produced in the liver and circulates in a homotetramer (four copies of the same TTR protein bound together) where it serves as a carrier protein for vitamin A and thyroxine. Certain mutations have been identified that can cause TTR homotetramers to fall apart, misfold, and aggregate into insoluble fibrils that deposit in cardiac tissue and peripheral nerves. However, more commonly, the normal aging process is associated with an increased propensity for TTR misfolding and aggregation in the heart without any known genetic sequence variation. These distinctions lead to TTR amyloidosis being characterized as either hereditary

transthyretin amyloidosis (“ATTRv”) caused by mutations in TTR, or wild-type ATTR amyloidosis (“ATTRwt”). It is estimated that globally there are approximately 50,000 patients with ATTRv and between 300,000 and 500,000 patients with ATTRwt. Among the larger ATTRwt patient population, the most common presentation is a rapidly progressive, restrictive, and hypertrophic cardiomyopathy due to progressive deposition of insoluble TTR fibrils, which result in thickening of the myocardium and stiffening of the ventricles. These pathologic processes lead to impaired diastolic function and progressive cardiomyopathy that typically leads to progressive heart failure and often death within three to five years from disease onset. Although cardiac manifestations are more common and severe, patients with neurologic manifestations also experience significant morbidity, loss of functionality, and impaired quality of life.

To date, treatment options for patients with TTR amyloidosis, including those with either cardiomyopathy or polyneuropathy manifestations, consist of efforts to stabilize the TTR tetramer with a small molecule (tafamadis), or knock down TTR levels through antisense oligonucleotides (i.e., inotersen and eplontersen which is currently under regulatory review in the U.S.) or siRNA strategies (i.e., patisiran and vutrisiran). Although these approaches have improved clinical outcomes for patients with TTR amyloidosis, the disease is still associated with significant morbidity and mortality and requires lifelong therapy to maintain therapeutic benefit.

Using our novel nucleases, we aim to provide efficient TTR knockdown and halt further deposition of amyloid fibrils. Previous experience suggests a clinical correlation between the degree of TTR knockdown and potential for benefit in familial forms of the disease, which are expected to translate similarly to wild type forms. The high degree of *in vivo* editing efficiency and specificity of our nuclease platform suggest the potential for a single treatment to knockdown TTR gene expression and remove the requirement for life-long therapy. Along with our partner Ionis Pharmaceuticals, Inc. (“Ionis”), we are currently in advanced stages of nuclease and guide selection and expect to move into NHP studies in 2024.

Further areas of therapeutic activity and interest

In parallel with our translation efforts in our lead programs using our novel programmable nucleases to knock-in or knock-down gene expression in liver-associated targets, we are developing more complex editing systems for liver associated targets as well as moving beyond the liver. Given that our genome editing toolbox contains small editing systems designed to be amenable to viral vector delivery, and given the progress established in targeting the central nervous system and muscle with established AAV capsids, our first extrahepatic indications will be neurodegenerative and neuromuscular diseases.

Building on our experience delivering our nucleases to the liver via LNP systems, we are extending that experience delivering novel RIGS to the liver to potentially correct ATP7B mutations in Wilson’s disease and PiZ mutations in alpha-1-antitrypsin deficiency (“A1AT deficiency”). We are also exploring addressing A1AT deficiency via a base editor approach given the predominant mutation involves a single base pair. Both of these liver diseases have well-defined biology, readily available translational biomarkers for early proof-of-concept, established development pathways based on prior drug approvals, and important unmet medical needs.

Building on our experience with our novel type II and type V programmable nucleases, we are extending that experience by working to deliver these nucleases via AAV to the central nervous system to potentially knock down genetic targets important for both spontaneous and familial amyotrophic lateral sclerosis (SOD1, ATXN2) and Charcot-Marie-Tooth Type 1a (PMP22). In addition, we are working to address a series of mutations common in Duchenne Muscular Dystrophy with our programmable nucleases through exon skipping approaches. In diseases outside of the liver, we intend to initially leverage known biology and clinical validation achieved with RNA-targeted approaches like antisense and siRNA to advance more potent and definitive one-time genome editing treatments.

Building on our experience with both knock-in gene expression and smaller gene corrections with RIGS, we are progressing our larger RNA- and DNA-mediated integration systems to potentially provide a single curative approach to cystic fibrosis. As opposed to currently-available therapies limited to subsets of patients with individual mutations, we intend to deliver a full copy of a functional cystic fibrosis transmembrane conductance regulator ("CFTR") gene. This approach can similarly be pursued across many other diseases characterized by loss of function mutations.

Our Team

We have assembled a world-class team that is driven by a passion to create potentially curative genetic medicines through the discovery of novel genome editing technologies by harnessing the power of metagenomics. Key members of our executive and leadership team include:

- **Brian C. Thomas, Ph.D., Chief Executive Officer and Founder**, prior to co-founding the company, Dr. Thomas spent more than 20 years in academic research at UC Berkeley helping to pioneer the field of metagenomics. Dr. Thomas has been cited over 16,000 times and listed as an inventor in 28 patent families.
- **Jian Irish, Ph.D., President and Chief Operating Officer**, has held biopharma executive leadership roles for nearly 20 years at Kite Pharma / Gilead, Sanofi, and Amgen in drug development and global operations, and has helped launch several breakthrough medicines.
- **Sarah Noonberg, M.D., Ph.D., Chief Medical Officer**, has spent more than 20 years in translational and clinical development leadership roles with a track record of advancing therapeutic programs from discovery to commercialization, including at Medivation and BioMarin.
- **Alan Brooks, Ph.D., SVP of Preclinical**, has worked on genetic medicines providing scientific leadership in translational research for more than 25 years, including at Casebia Therapeutics and Bayer Healthcare. Dr. Brooks' research has led to 20 publications and numerous patent filings.
- **Simon Harnest, Chief Investment Officer and SVP of Strategy**, has held leadership roles in corporate finance and strategy in the life sciences sector, having raised over $1 billion in public and private capital, including leading Cellectis' U.S. IPO and subsequent spin-out and IPO of Calyxt.
- **Christopher T. Brown, Ph.D., VP of Discovery,** is a former scientist at the Jillian F. Banfield laboratory at UC Berkeley and an expert in using metagenomics to discover novel microbial systems for use in genome editing. Dr. Brown's research has resulted in over 35 publications and over 20 patent family filings.
- **Simren Delaney, Ph.D., LLM, VP of Legal,** is specialized in Intellectual Property and Patent law, having previously worked at Wilson Sonsini Goodrich & Rosati, and plays an instrumental role in driving the development of the company's growing IP portfolio.
- **Michael Conway, MBA, CPA, VP of Finance,** has spent nearly 20 years in finance leadership positions at life science and technology companies, including Adamas Pharmaceuticals, InterMune, and Intel.

Our company is supported by our board of directors, Scientific Advisory Board, and a leading syndicate of investors, with more than 30 funds supporting our Series B preferred unit and Series B-1 preferred unit financings (collectively, the "Series B preferred unit financing").

Our Strategy

Our goal is to harness the power of our proprietary metagenomics platform to create curative genetic medicines for patients. Key components of our strategy to achieve this goal include:

- **Leverage our leadership position in metagenomics to continually advance and expand innovative genome editing tools.** We expect to build on the diversity and versatility of our toolbox through continuous interrogation of novel microbial genomic information, identification of highly active natural enzymes, design and optimization of genome editing systems, and continuous integration of learnings to accelerate development. In connection with these discoveries, we will continue to strenuously file and protect our intellectual property. Coupled with our trade secret protection around our discovery platform, our broad intellectual property estate creates a significant barrier to entry.
- **Develop and deliver products that make precise modifications to the human genome to cure disease.** We focus on disease areas with well understood disease biology, readily available translational biomarkers for early proof-of-concept, clear development pathways, and important unmet medical need. We are taking a stepwise approach deploying our genome editing toolbox to develop potentially curative therapies for patients. Along with our development efforts using our novel programmable nucleases to knock-in or knock-down gene expression in liver-associated targets, we are leveraging our toolbox to deliver more complex editing systems to targets in and outside the liver. Our approach allows us to systematically incorporate knowledge and insights from our initial development programs, thereby accelerating therapeutic translation across our genome editing technologies.
- **Build a fully integrated genome editing company.** Our team includes experts in discovery, preclinical and clinical development, encompassing all major functions necessary to take a molecule from target identification through registrational clinical trials. To rapidly translate editing technologies into genetic medicines, we strategically invest in automation, characterization, and manufacturing capabilities. This applies not only to process development and manufacturing for clinical trial materials, but also high throughput automated screening and genome sequencing, and state-of-the-art characterization assays. We believe our ability to develop and characterize complex human genome editing components is essential to pursue a successful regulatory pathway for genetic medicine development.
- **Expand therapeutic impact to patients through continued investment in business development and enabling partnerships.** We carefully consider opportunities for business development such as collaborations and partnerships with industry leaders that have unique strengths and we may pursue additional partnership opportunities which complement our technologies, with the objective of accelerating our programs and pushing forward our therapeutic translation efforts. Our existing partnerships with Moderna, Ionis, and Affini-T Therapeutics, Inc. (“Affini-T”) demonstrate our thoughtful approach to collaborating with industry pioneers to accelerate and optimize the development of our genetic therapeutic candidates.
- **Maintain our entrepreneurial outlook, scientifically rigorous approach, and culture of tireless commitment to patients.** We are a team of experienced drug discoverers, developers, and company builders who are united by our mission and passion to unlock the full potential of genome editing for patients with high unmet needs. We are dedicated to attracting and retaining top talent and partnerships at the intersection of academia and industry. We are unwavering in our commitment to deliver cutting-edge technology and unlock the long-awaited, transformative potential of genome editing.

Introduction to Genome Editing and Limitations with Current Approaches

Genome editing is a new treatment modality that has the potential to revolutionize healthcare by creating permanent, one-time treatments that address disease at the genomic level. Genome editing involves the alteration of genetic material of a living organism by inserting, replacing, converting, or deleting nucleotides

within the DNA. Several approaches and technologies are being studied and developed in order to perform these edits, including:

Nuclease-based genome editing: Several genome editing methods rely on a class of enzymes called nucleases to create double-stranded breaks in DNA at a targeted location to cause gene inactivation, gene insertion, or alter gene splicing. Examples of nucleases include CRISPR associated nucleases, zinc finger nucleases ("ZFNs"), engineered meganucleases, and transcription-activator like effector nucleases ("TALENs"). The discovery and characterization of a particular nuclease, Cas protein 9 from *Streptococcus pyogenes* ("SpCas9"), has been leveraged to develop a number of different therapeutic approaches. Importantly, additional novel and distinct Cas nucleases exist in nature and have the potential to be developed into tools for genome editing. When introduced at target sites in a genome sequence, genomic breaks trigger DNA repair pathways that can be used for genome editing. If a DNA template is provided, the DNA repair machinery may incorporate the sequence at the site of the genomic break, resulting in a site-specific knock-in. If not, the cut will lead to the disruption of a gene sequence and subsequent knock-down of the encoded protein.

Base editing: Base editing is a genome editing approach that relies on using deaminases to chemically convert specific nucleotides in a genome. Deaminases are enzymes that catalyze chemical reactions to remove an amino group. Multiple programmable nuclease platforms, such as CRISPR nucleases, have been harnessed for base editing by using the programmable nature of these enzymes to direct deaminases to specific genomic target sites. In these cases, the nuclease activity is deactivated, thus creating a nicking or nuclease-dead version that does not disrupt the ability of the enzyme to be programmed to target specific genomic sites for editing. There are two primary types of base editors: adenine base editors ("ABEs") and cytosine base editors ("CBEs"). ABEs convert adenine-thymine base pairs to guanine-cytosine base pairs. CBEs target cytosine-guanine and convert them to thymine-adenine.

RNA-mediated integration, including prime editing: RNA-mediated integration systems ("RIGS") are genome editing systems that make programmable genomic modifications that are encoded in RNA templates. Because the modifications are encoded in RNA, these systems have the ability to repair diverse mutations, including insertions, deletions, and all types of point mutations. These systems rely on RTs to convert messages encoded as RNA into DNA. CRISPR systems are used to direct RTs to genomic target sites. Some systems use a nickase to create a target-specific site that primes the activity of the RT and results in the corrected genomic sequence encoded in the RNA to be incorporated into the genome. Prime editing can be accomplished with RIGS, as can large, targeted genomic integrations.

DNA-mediated integration, including CAST: CASTs are a class of genome editing systems that provide directed and programmable genomic integration of large DNA templates. CASTs are naturally occurring systems that have been engineered to accomplish large integrations for genome editing in various cell types and for therapeutic applications. The systems consist of a catalytically dead Cas effector that can be programmed by gRNAs to target a transposase to integrate large DNA cargos into specific genomic target sites. DNA-templated integrations can be accomplished with other transposase and recombinase systems; however, these systems typically require extensive protein engineering in order to alter their targetability, or need to be used in concert with other genome editing tools such as prime editing systems in order to incorporate targeting motifs into specific genomic sites.

There have been significant advancements in genome editing since the seminal research that led to the discovery of CRISPR SpCas9 and its application in humans. However, there remain key limitations that must be

addressed to unlock the full potential of genome editing. We believe the key limitations facing current genome editing platforms are:

1) ***First-generation technology lacks the ability and flexibility for accomplishing complex genome editing.*** The majority of genome editing platforms are limited to a single genome editing approach, such as gene insertions/deletions, single nucleotide changes, or small gene corrections. As a result, they are faced with inherent limitations including the diversity of edits in which they can employ and, as a result, an inability to address a range of diseases. In addition, they lack the flexibility to tailor their genome editing system to a broad range of genomic targets of interest.

2) ***Lack specificity and control over resulting edits.*** Current genome editing platforms have a narrow armamentarium of genome editing systems and therefore limited access to systems capable of high activity and specificity at desired target sites. This lack of control and specificity is often measured by "off-target" edits which can pose a risk for undesirable side effects or unexpected safety findings.

3) ***Size of current genome editing technologies limits* in vivo *delivery methods and target organs.*** First-generation SpCas9 systems are about 1,300 amino acids ("aa") in length and as such are not feasible to package into many delivery vectors such as AAV. As such, their delivery is largely limited to LNP systems, which precludes delivery to many tissues outside of the liver.

4) ***Inability to access certain sequences in the genome.*** SpCas9 is only able to target DNA sequences which contain a flanking sequence of "NGG", restricting the range in genetic targets it can be programmed to locate, and subsequently limiting the ability to address certain underlying mutations that drive disease.

5) ***Substantial engineering requirements.*** Limited access to highly active natural nucleases and effectors drives the need for substantial modifications to make a system operate at therapeutically-relevant levels, resulting in long lead times from discovery to candidate nomination.

6) ***Narrow terms of license agreement from academic institutions.*** The majority of genome editing platforms have been formed as a result of a licensing agreement for specific genome editing systems or technology from academic institutions and are therefore limited to the confines of that technology arrangement. Alternatively, genome editing tools developed by us are built from highly novel components derived from our metagenomics database, and thus are not subject to these constraints.

In order to address these broad challenges with current genome editing approaches, we have leveraged our deep expertise with metagenomics to develop a proprietary discovery platform that is designed to continuously identify novel editing systems and optimize our expansive editing toolbox. Starting at the microbial level, our multifaceted platform enables discovery beyond nucleases, translating highly active natural enzymes into powerful genome editing systems optimized for efficiency and specificity.

Our Metagenomics Platform

We believe genome editing tools with capabilities that go beyond the current technology landscape will be required in order to treat the vast majority of genetic diseases. Our goal is to unlock the full potential of genome editing by developing tools with new capabilities using novel cellular machinery discovered from the natural environment. Our company was founded by Brian C. Thomas and Jillian F. Banfield, pioneers in the field of metagenomics. They recognized the power that naturally evolved microbial systems could have in revolutionizing access to enhanced genome editing technologies to create potentially highly efficacious and curative genetic medicines. Our metagenomics discovery platform is foundational to our business and therapeutic pipeline. This platform enables us to rapidly and effectively find and engineer highly active natural enzymes sourced from nature into genome editing tools that are highly specific, efficient, and have enhanced targetability.

CRISPR systems, having been studied for decades, are known to be ubiquitous in the microbial world. However, it was not until the recent discovery and characterization of CRISPR-SpCas9 that it became possible to use these systems as tools for genome editing. SpCas9 is only a single representative of the CRISPR systems that exist in nature, leaving open the potential to identify and develop new genome editing tools through continued and systematic discovery efforts. The vast majority of microbes, including bacteria, archaea, viruses, fungi, and single-celled eukaryotes, are extremely difficult, and potentially impossible, to study using traditional laboratory methods. We aim to address the limitations of traditional laboratory methods through a process whereby microbes are recovered from the natural environment and studied based on their genetic blueprint-their genome sequences. This approach has supported the ability to characterize the extent of CRISPR biology on the planet, and to expand beyond CRISPR to identify a vast collection of novel enzymes and other cellular machinery.

Samples from diverse climates and geographies have been used to build a metagenomic database that is continuously analyzed via high-throughput screening that utilizes AI and proprietary algorithms to direct our discovery efforts. This continuous genome mining process generates expansive libraries of novel systems, including nucleases, deaminases, RTs, and CAST systems (together, “effector enzymes”), that make up the foundational building blocks necessary to assemble a modular, novel genome editing toolbox that can be harnessed to make precise changes to the human genome to address a variety of important diseases with curative intent. We have simultaneously developed a modular approach to engineering that involves interchanging key components in a high-speed process to translate the discovery of novel nucleases and other effector enzymes into optimized genome editing systems with substantially reduced translation time compared with previously described systems. We estimate that our metagenomics platform and modular engineering process has resulted in the discovery of over 20,000 novel genome editing systems, to which we are seeking coverage through our pending patent portfolio. These systems span hundreds of novel nuclease families and fuel a growing genome editing toolbox.

Mining Our Natural Environment to Create an Expansive Genomics Database

We aim to harness the power of the metagenome by using our continuous genome mining process to assemble a broad, diverse library of novel genome editing nucleases and other effector enzymes. This is accomplished by studying all the DNA from microbial communities at the same time. Our mining process begins with proprietary sampling in which our scientists collect samples from diverse climates and geographies to build a database that spans broad biodiversity including, but not limited to our local natural environments and extreme environments such as from high-altitudes, high-temperatures, and hydrothermal vents below the ocean. Samples collected in a natural environment may contain billions of cells representing tens of thousands of distinct species. Every sample collected from a natural environment is subjected to deep DNA sequencing and bioinformatics analysis to identify and functionally analyze recovered microbial genomes for the discovery of genetic elements of interest.

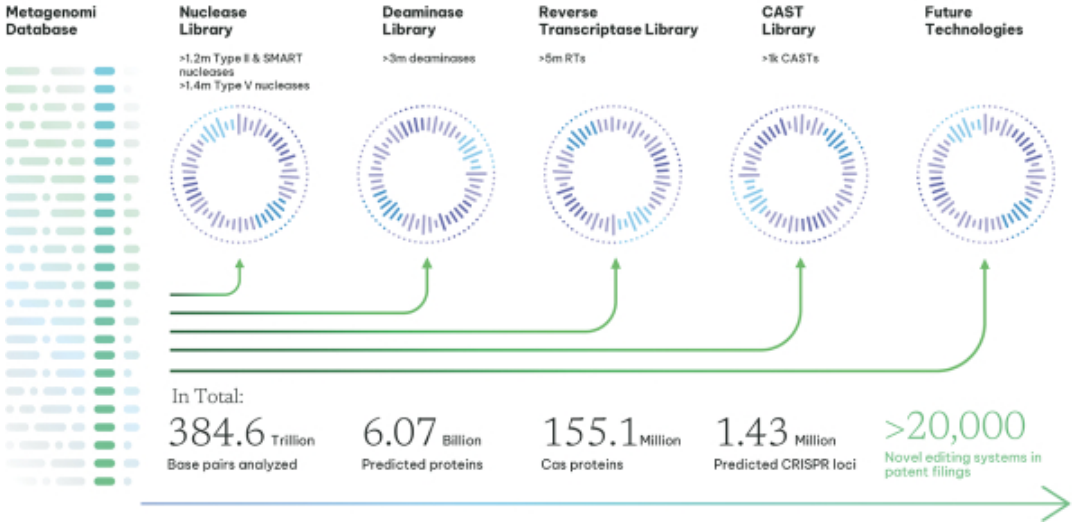
Through our metagenomics process, DNA is extracted from these environmental samples and sequenced in order to reconstruct the genomes of the resident microbes. The process of DNA extraction and sequencing results in the fragmentation of each individual microbial genome into small sections which are blended into a backdrop of all other sequences present. Due to the clonal replication of the organisms in microbial communities, multiple copies of nearly-identical genome sequences are recovered, and the overlap between these sequences provides the information needed to reconstruct the original genomes. This complex process is only the beginning. Once reconstructed, it is necessary to predict the function of each section of the newly reconstructed genomes. Our platform has facilitated the discovery of vast sequences and functional components that, to our knowledge, have never been published before. These novel components have resulted from the unique selective pressures that microbes face from different environments and that drive immense genomic diversification. The evolutionary process of natural selection provides highly optimized enzymes that

require little protein engineering. The novelty of the genomes recovered from metagenomics requires the de novo prediction of genes, proteins, non-coding RNAs, and other essential features. This is due to previously studied 'reference' sequences not providing enough information to sufficiently guide this process. Considering that these evolutionary processes have been at work for billions of years, there is considerable genetic diversity to mine for the development of highly-optimized genome editing tools. Our industry-leading database of novel microbial genetic sequences provides the basis for our discovery process. To date, our continuous genome mining process has analyzed over 380 trillion base pairs of DNA sequence, an amount of data roughly equivalent to what would be required to sequence hundreds of thousands of human genomes, and resulted in the prediction of over 6 billion proteins and over 1.4 million CRISPR loci – including over 150 million Cas proteins.

Leveraging AI and High-Throughput Screening to Identify Novel Editing Systems

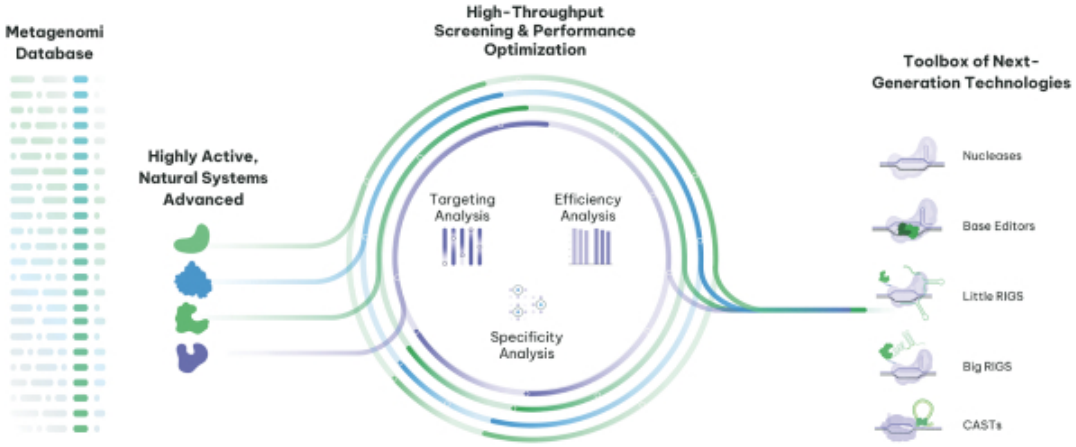
To interrogate our metagenomics database, our platform combines AI, including machine learning, and proprietary algorithms run on expansive cloud computing infrastructure to screen for novel CRISPR nucleases and other effector enzymes at high speed. The screening process consists of high-throughput sequencing that allows us to quickly analyze large amounts of genomic data and subsequently synthesize the identified components, building blocks, into functioning CRISPR nucleases and other effector enzymes that can be interrogated biochemically and in mammalian cells. Once extensively characterized, novel nucleases and other effector enzymes are categorized into our ever-expanding library. Through the metagenomics-driven discovery process we have characterized one of the largest known libraries of novel nucleases, which we estimate includes 20,000 novel genome editing systems from hundreds of nuclease families. We have also assembled a robust library of other effector enzymes to design and engineer the next generation of genome editing systems that are fit for essentially any therapeutic purpose. Our effector enzyme library includes over three million deaminases, over five million RTs, and thousands of CAST systems, as shown in Figure 3 below. The continuous interrogation of an ever-expanding database of programmable nucleases and other enzyme effectors accelerates the pace of learning and insights to feedback into proprietary machine learning algorithms and further separates us from peer companies. As we continue to build upon our metagenomic library, we expect to make additional discoveries of novel genome editing technology and expand our toolbox.

Figure 3. Our Effector Enzyme Library.



From this library, we select our lead nucleases and other effector enzymes through a funnel of stringent performance and safety criteria that involves testing in a series of cell-free, cell-based, and *in vivo* experiments. Ultimately, we prioritize editing systems that exhibit high editing efficiency and precision, and have a compact size that will optimize their delivery. Because most systems added to our genome editing toolbox have different genomic targeting specifications, we believe that our expanding toolbox could enable us to target every base pair in the human genome. This process, highlighted in Figure 4, helps us to identify highly active natural enzymes that require minimal engineering and optimization to translate into potentially curative genetic medicine.

Figure 4. Overview of High-Throughput Screening Process.



Modular Engineering Translates Metagenomic Discoveries into Genetic Medicines

By selecting highly active nucleases from our library, our process requires minimal optimization to develop genome editing systems. We utilize a modular engineering approach to match lead nuclease candidates with an optimal gRNA and targeting domain in order to optimize targeting, specificity, and editing efficiency. Furthermore, additional effector enzymes can be included to modify the function of the system, for example by adding a deaminase to a nickase variant for base editing.

This process leverages our vast library of editing systems to perform targeting domain swaps between enzymes, substituting domains from less-active enzymes into the backbone of highly-active nucleases in order to modify their targeting ability. These chimeric enzymes provide us with unique access to high efficiency editing at gene loci. The modular engineering process is accelerated using *in silico* screening algorithms to predict the optimal chimera. This predicative, high-speed engineering process allows us to continually iterate across each component of the genome editing system to quickly develop an engineered system that is optimized for various therapeutic applications.

Modular engineering can be used to adjust the targeting of high-performing systems by leveraging the diverse targeting capabilities of diverse Metagenomi nucleases. Given the measured targeting density of our toolbox, we believe that essentially any codon and ultimately every base pair in the human genome could be addressed with our gene editing systems.

Our metagenomics platform and modular engineering process has supported the discovery and development of our broad genome editing toolbox at a rapid pace since our company's founding in 2018. Genome editing remains in the early stages of development and our platform allows us to continuously learn, iterate, and optimize our genome editing toolbox in pursuit of curative genome editing medicines. The increasing insights

from our modular engineering and target domain swapping are captured and further interrogated and organized by our proprietary AI platform to accelerate the pace of future development and further separate us from our peers. As the genetic medicine field continues to rapidly evolve, our platform positions us to be at the forefront of unlocking the full potential of genome editing through the continuous discovery of new editing systems and the development of the next wave of genetic medicines.

Our Solution: Proprietary Toolbox Derived from Our Metagenomic Approach

Our Platform of Genome Editing Technologies

Gene Edit	Metagenomi ("MG") Tools	Key Attributes
Knock-down/ Gene activation Knock-in / Gene insertion Exon skipping / Gene modification	**Type II Nucleases**	• Extensive targetability (Alexander et al 2023, Lamothe et al 2023) • Can be converted to nickases for base editing and RIGS
	Type V Nucleases	• Systems with small gRNAs (Goltsman et al 2020) • Includes ultra-small systems that expand delivery approaches (e.g., AAV)
	SMART Nucleases	• Ultra–small systems expand delivery approaches (e.g., AAV) (Goltsman et al 2022) • Can be converted to nickases for base editing and RIGS
Nucleotide changes (i.e. base editing)	**ABE and CBE**	• Engineered from MG nickase and MG deaminase • CBE also include MG uracil glycosylase inhibitor ("UGI") • Base editors engineered from type II have extensive genomic targetability • SMART base editors are smallest nickase-based systems characterized to date
Small replacements / corrections (1-100 base pair replacement, insertion, or deletion) (i.e. prime editing)	**Little RIGS**	• Engineered from MG nickase and MG RT • Ultra-small RTs are highly active and accurate for prime editing • Enabled by extensive targetability and deliverability of MG nickases
Large insertions (>100 base pair integrations)	**RNA-templated: Big RIGS**	• Engineered from MG nickase and MG RT • MG RT are accurate, and can convert >4,000 bp RNA templates into DNA • Programmable integration of large transgenes delivered as RNA
	DNA-templated: CAST and other systems	• CASTs are naturally occurring programmable transposase systems • Ability to site-specifically integrate large transgenes delivered as DNA, possibly including templates much larger than 4,000 bp • Potential to addresses any genetic disease driven by loss of function

All components of our toolbox have been discovered and derived from our proprietary metagenomics library. We have assembled a full suite of differentiated tools that, together, can potentially effectuate any desired gene modification – gene knock-down, gene knock-in and replacements. We believe there is no other single platform enabling the breadth and differentiation of genome editing technologies as our toolbox. All elements of our toolbox are wholly owned, and we have constructed a broad patent estate that protects our intellectual property, and it will continue to expand as we discover, interrogate, and optimize our novel editing systems. As we continue to expand our metagenomic library, we expect to make additional discoveries of novel genome editing technology. The core technologies in our toolbox to date are outlined in the above table.

Key Attributes of Our Proprietary Toolbox

Key advantages of our platform and technologies are:

1) ***Potential to create a full spectrum of genetic medicines –*** Our broad suite of genome editing technologies include: programmable nucleases, base editors, RIGS and CASTs, that, together, can potentially effectuate any desired modification to the genome – gene knock-down, gene knock-in, and replacements. This allows us to address a diverse set of mutations by matching the right tool to a specific target, with limited unintended effects such as off-target editing. As such, we intend to prosecute a genetic medicine therapeutic development strategy across a broad array of diseases and target organs including liver, central nervous system, muscle, kidney, and lung.

2) ***Potential next generation genome editing systems*** – Our scientific underpinnings based in metagenomics provides a continuous engine for discovering and developing potential next generation genome editing systems. For example, RIGS and CAST. As we continue to build upon our metagenomic library we expect to expand our toolbox as we make more discoveries. We have constructed a broad patent estate that protects our intellectual property, and it will continue to expand as we discover, interrogate, and optimize our novel editing systems.

3) ***Ultra-small nuclease platform to expand*** **in vivo** ***delivery of multiple genome editing systems*** – Compact systems create potential advantages for delivery, manufacturing, and dosing. For example, at 429 aa in length the SMART nuclease is a fraction of the size of the industry-standard SpCas9 system, which is 1,300 aa and exceeds the delivery capacity of standard AAV vectors. The ability to package our systems into a single AAV will enable more efficient targeting of organs and diseases beyond what is currently possible with LNP delivery.

4) ***Designed to edit any target in the human genome*** – Our metagenomics library contains hundreds of nucleases with diverse targeting abilities that allow us to address a diverse set of mutations that cause disease, including those found at sites that often cannot be targeted by first-generation nucleases. This allows us to select the ideal nuclease for any target site of interest. Given the measured targeting density of our toolbox, we believe that essentially any codon in the human genome could be addressed with our gene editing systems.

5) ***Shortened optimization period –*** We benefit from a diverse set of highly-active nucleases and effectors which have required little -if any- protein engineering to optimize. These highly active natural enzymes allow us to quickly identify systems for therapeutic development. As a result of not having to heavily engineer systems to be active in human genome editing applications, we are able to move quickly from discovery to candidate nomination for particular genetic disease applications.

6) ***Ability to target large gene integrations into the genome using our RIGS and CAST systems –*** Our novel RIGS and CAST systems allow for programmable, large gene insertions, an outcome which has been a major challenge for the genome editing field. RIGS are a proprietary genome editing system engineered from nickases and RTs, while CAST are systems that exist in nature but have required engineering to allow

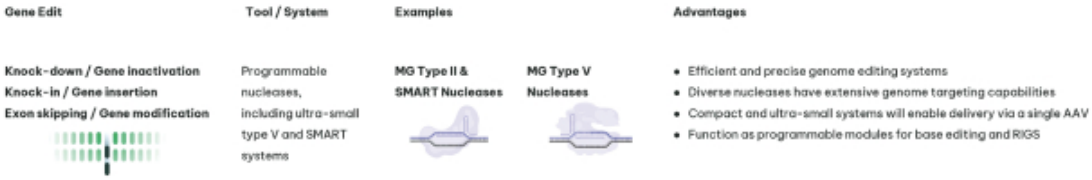
for mammalian genome editing. We believe we are the first to demonstrate targeted genomic integration in human cells using compact CAST systems. While CAST have the theoretical capability to integrate very large DNA templates into the genome, RIGS are also being developed in order to achieve targeted, large genomic integrations when all components need to be delivered as RNA, for example when using standard LNP delivery technology.

Specific Components of Our Toolbox

Programmable Nucleases

Overview

Figure 5. Schematic Showing Programmable Nucleases and Their Use for Genome Editing.



We are building a toolbox that includes programmable nucleases that are selected to target any site in the human genome with high precision. Most therapeutic genome editing applications to date use CRISPR/SpCas9 as the programmable nuclease. However, this system has several limitations that prevent its broad use across the thousands of genetic diseases that impact patients. Most importantly, SpCas9 is limited by where it can be targeted in the human genome and in some cases has a lack of specificity that leads to frequent off-target editing. In addition, the size of the SpCas9 enzyme complicates options for delivery using industry-standard methods. We have explored diverse programmable nucleases found in nature in order to identify novel systems that overcome all of these limitations (Figure 5).

The discovery of new CRISPR enzymes with unique functionality and structure may offer the potential to further disrupt genome editing technologies, improving speed, specificity, functionality, and ease of use. CRISPR systems are commonly organized into two classes, six types and expanding number of subtypes based on shared functional characteristics and evolutionary similarity. We focus our attention on CRISPR type II and type V systems, owing to the simplicity of these programmable nucleases. Type II and type V nucleases are RNA-guided enzymes that can be programmed to target specific sequences of DNA, and sometimes RNA. Unlike type II nucleases, type V nucleases are more likely to generate staggered versus blunt-end cuts in double stranded DNA. Nucleases from both of these systems are extensively used in biotechnology, despite limitations that prevent their more widespread use in therapeutic applications. Our type II and type V CRISPR systems are distinct from previously studied CRISPR enzymes (including protein sequence, size, and biochemistry), while maintaining the core functionality of being programmable nucleases. Our lead systems have undergone extensive study across multiple mammalian cell types and animal models, demonstrating their utility as genome editing tools in both *in vivo* and *ex vivo* applications.

Throughout our search for novel programmable nucleases, we have identified several new types of ultra-small nucleases that range in size from approximately 450 aa to 1,000 aa, compared with typical type II and type V nucleases which are typically between 1,000 aa and 1,500 aa in length (for comparison, the most studied SpCas9 enzyme is 1,368 aa). Our newly-discovered, ultra-small nucleases include new types that we collectively refer to as SMART, as well as those that come from novel type V sub-groups. Given their small size, these new systems have the

potential to be delivered to additional therapeutic target sites that expand beyond what is possible with first-generation systems. In adapting these novel systems into potential precision genetic medicines, our programmable nucleases are designed to have the capability to target essentially any therapeutically relevant genomic site with a high level of specificity (i.e. with limited off-target editing), while expanding compatibility with available delivery technologies.

Our Approach

To date, we have identified thousands of novel CRISPR type II, type V and SMART nucleases, including ultra-small systems, expanding the collection of known programmable nucleases by mining our proprietary metagenomics database. Using high-throughput *in vitro* testing, we have validated the activity of hundreds of novel nucleases. This has led to the identification of highly-active natural nucleases while also enabling us to catalog the unique targeting capabilities of each system. We select for natural, un-engineered systems with high activity and specificity. Our best-characterized nucleases have demonstrated activity levels meeting and often greatly exceeding SpCas9 while exhibiting low levels of off-target editing in mammalian cells. Given the measured targeting density of our toolbox, we believe that essentially any codon in the human genome could be addressed with our gene editing systems. The targeting density (frequency of targetable sites in the human genome) of the toolbox greatly increases the likelihood of identifying a highly active and specific nuclease and gRNA combination for any therapeutically relevant genomic target. We can use these programmable nucleases for genome editing, and also as a chassis for developing base editors and RIGS. The diverse biochemistry of these novel systems, including their size and DNA cutting profiles, makes it possible to link editing systems to the particular genomic target, edit type, and delivery technology we believe are required to develop genetic medicines. Additional discovery and characterization of programmable nucleases will further expand the targeting density of our toolbox, improving the overall activity and specificity of lead systems identified for therapeutic development.

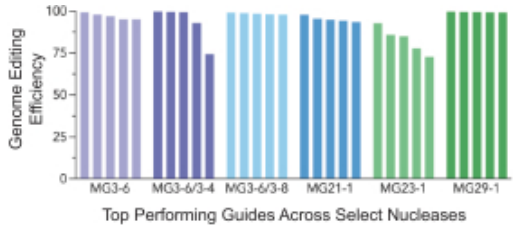
Our best-characterized type II and type V nucleases are suitable for a wide variety of genome editing applications

Nucleases with the activity and specificity required for potential therapeutic genome editing applications are identified through a series of high-throughput screening and characterization steps. Novel protein and gRNAs are first predicted bioinformatically and then validated in both cell-free and mammalian cell screens. These steps validate the activity of a system and provide an accurate measure of targeting and specificity profiles. This approach has been applied to both type II and type V CRISPR nucleases in order to establish an expanding collection of well-characterized systems. In addition to discovery of novel nucleases with distinct targeting capabilities, a modular protein engineering approach is also used in order to create chimeric systems. The chimera approach leverages the high activity of top-performing systems but changes where they can edit by incorporating distinct targeting domains from related systems. Through continuous discovery and refinement, this collection of systems will expand, with the potential to target essentially every site in the human genome, while also creating a chassis to support the accelerated development of base editing, prime editing, and targeted integration systems.

Given the measured targeting density of our toolbox, we believe that essentially any codon in the human genome could be addressed with our gene editing systems.

Figure 6. Our Expanding Nuclease Toolbox is Designed to Enable Extensive Targeting throughout the Human Genome.

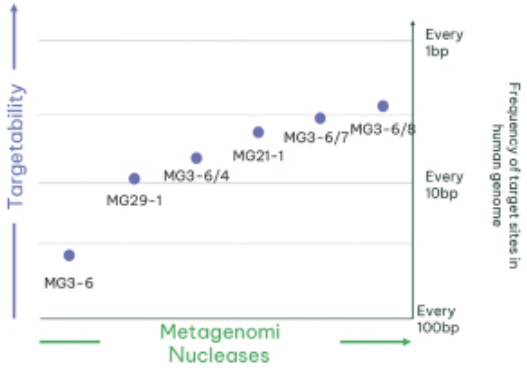
Figure 6a. Our nucleases have shown high editing efficiency in mammalian cells.



* Editing efficiency was determined based on the frequency of InDels detected by next generation sequencing ("NGS") at genomic sites targeted by each nuclease.

* Graph depicts editing efficiency for the top five guides for each of six nucleases.

Figure 6b. Given the measured targeting density of our toolbox, we believe that essentially any codon in the human genome could be addressed with our gene editing systems.



* Graph depicts cumulative targetability.

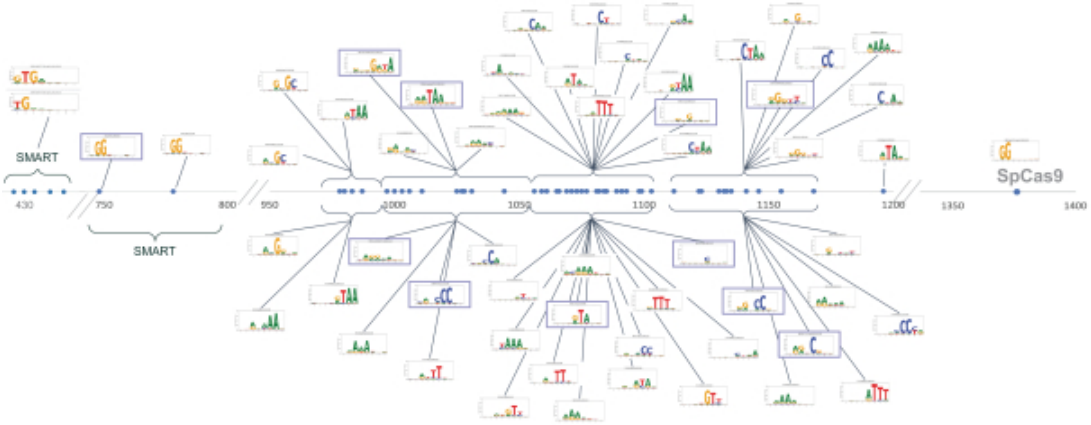
* Targeting density (targetability) is the average distance between nuclease target sites in the human genome.

Our nucleases are capable of highly efficient genome editing in mammalian cells. Systems are tested across a collection of gRNAs designed based on the unique requirements and targeting preferences determined for each system. If a nuclease is routinely capable of editing at near-saturating levels, sometimes up to 99% editing efficiency, the system will go through further characterization and therapeutic development. Figure 6a shows the high editing efficiency of six systems observed in mammalian cells, indicating that they have the potential for broad use in therapeutic development given an ability to rapidly identify high performing guides that require minimal optimization.

Given that each nuclease has distinct genomic targeting capabilities, we are able to determine which sites in the human genome can be addressed by each system. Figure 6b shows how the targeting density of our toolbox increases with each new system. Given the measured targeting density of our toolbox, we believe that essentially any codon in the human genome could be addressed with our gene editing systems. This collection of systems includes both natural enzymes as well as chimeric forms that have been engineered to alter the targetability of the nuclease. For reference, SpCas9 is able to target roughly every ten base pairs in the human genome. The targeting density of the toolbox increases the likelihood of identifying a highly-potent guide for any desired genome edit.

Our nuclease toolbox is on track to target anywhere in the human genome

Figure 7. Our Nucleases are Compact with Diverse Targeting Sequence Motifs, Selected to Enable Broad Genome Editing Applications.



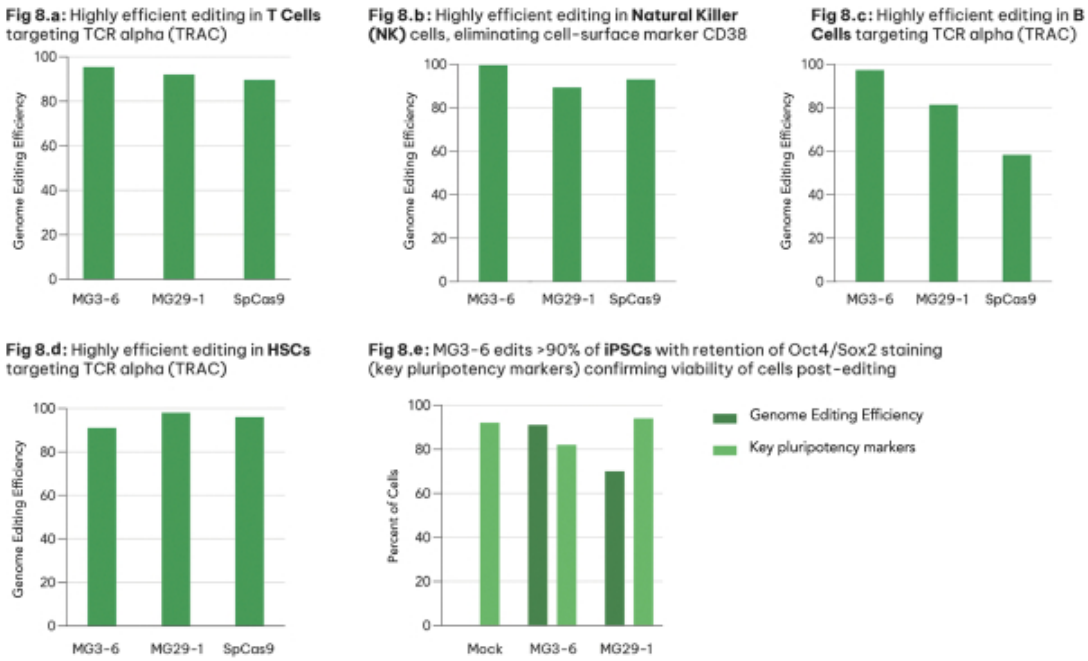
* Graph depicts a selection of our nucleases, including their size in aa on the horizontal axis and their corresponding targeting motifs shown as sequence logos (PAM and TAM sequences), compared to SpCas9.

Multiple parameters are considered when screening and promoting nucleases for further development, including the size of the system, activity across various assays and cell types, and targeting. For CRISPR systems, nuclease targeting is limited by a PAM sequence, or protospacer adjacent motif. The PAM is a short DNA sequence motif that must be present next to a target sequence in order for the nuclease to cut at the target site. Other systems have similar requirements that go by different names. For example, some SMART nucleases recognize functionally orthologous sequences called target-adjacent motifs (“TAMs”). Figure 7 shows the diversity of protein sizes and targeting motifs recognized by our nucleases. The vast diversity of the protein size and targeting motif requirements of our nucleases continues to fuel toolbox development and will enable the identification of additional systems that could make it possible to target nearly every base pair in the human genome.

Our nucleases are highly active across many human cell types which may indicate broad potential utility for human therapeutic applications

Beyond initial nuclease benchmarking conducted in immortalized mammalian cell lines, we have conducted extensive surveys to show that these systems can be used in a variety of primary cells important for preclinical studies (i.e., T cells, natural killer (“NK”) cells, B cells, hematopoietic stem cells (“HSCs”) and induced pluripotent stem cells (“iPSCs”)), as illustrated by Figure 8 below. The versatility of these exemplary systems indicates their potential use in broad therapeutic applications. These benchmarks against SpCas9 also indicate that our systems may have potency advantages in which fewer genome editing reagents will need to be delivered in order to achieve high levels of genome editing.

Figure 8. Our Nucleases Show High Editing Efficiency in Human T Cells, NK Cells, B Cells, HSCs, and iPSCs.



* Two example nucleases are shown, type II MG3-6 and type V MG29-1.

* Editing efficiency was determined based on the frequency of InDels detected by NGS at genomic sites targeted by each nuclease.

Our nucleases exhibit high specificity when benchmarked in multiple mammalian cell types

Our therapeutic development of genome editing systems require that they exhibit high activity and specificity across multiple cell-based models. We employ a broad set of specificity and off-target assessment methodologies, including *in silico*, biochemical, and cell-based approaches. Figure 9 shows peer-reviewed and published off-target assessments conducted using an unbiased, industry standard, cell-based, oligonucleotide capture method. In Figure 9a we show that two of our nucleases are more specific than SpCas9 when compared across multiple guides, and in Figure 9b we show that we can identify guides with no to minimal detectable off-targets with two lead nucleases tested in both immortalized and primary human cells. This trend has continued, and we are able to identify guides that have minimal or no detectable off-target activity for therapeutic targets. It is expected that the higher specificity of these systems will translate into better safety profiles across various therapeutic genome editing applications.

Figure 9. Our Nucleases are Highly Specific.

Figure 9a. Our nucleases are highly specific in multiple mammalian cell types.

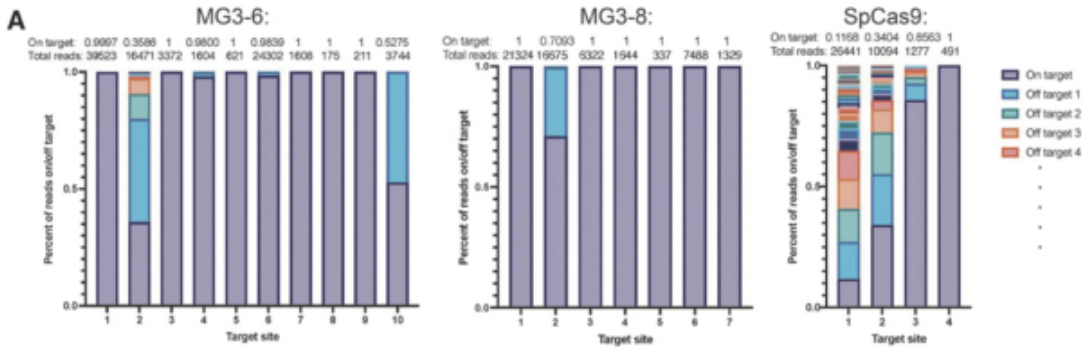
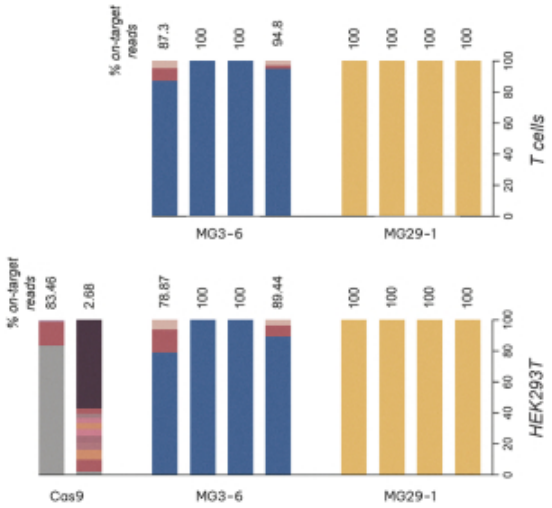


Figure 9b. Our best-characterized nucleases have guides that showed no to minimal detectable off-target edits when assayed in immortalized and primary human cells.



* Figure 9a: Off-target analysis showed that our type II MG3-6 and MG3-8 nucleases have high specificity in multiple mammalian cell types as measured by the number of off-target sites and the fraction of on-target reads. The target sites are the same between the three nucleases, including SpCas9. Off-target experiments were conducted at N = 2, and reads for both replicates were summed for analysis. Double strand break ("DSB") discovery via capture of a double-stranded oligonucleotide in primary T cells using the same MG3-6 and MG29-1 guides from (A; averaged across three biological replicates). Source: Alexander et al 2023 CRISPR Journal

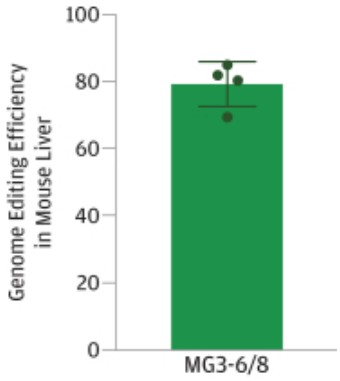
* Figure 9b: DSB discovery via capture of a double-stranded oligonucleotide in HEK293T cells with SpCas9 (on target read in gray), guides MG3-6 TRAC B2, TRAC D2, TRAC 6, and GR 3 (on target in blue), and MG29-1 guides TRAC 9, TRAC 19, TRAC 35, and GR 13 (on target in yellow) across three biological replicates. Source: Lamothe et al 2023 CRISPR Journal

Our nucleases enable highly efficient and specific in vivo *genome editing in preclinical evaluations*

Type II MG3-6/8 is our chimeric nuclease that has been extensively characterized *in vitro* and *in vivo*. This system is engineered from the MG3-6 chassis, which was discovered from the genome of a commensal, non-pathogenic representative of the human microbiome that showed high editing efficiencies when tested

across multiple mammalian cell types (see Figures 6, 8 and 9 above). The engineering involved changing the PAM interacting domain of the chassis, which enables the enzyme to be targeted to new sites in the human genome. Figure 10 shows that this system is suitable for *in vivo* applications, based on saturating levels of editing achieved in a mouse study with a single administration of nuclease mRNA and guide encapsulated in a LNP with tropism to the liver.

Figure 10. In Vivo Editing in Mice with MG3-6/8 Nuclease.



Editing efficiency was determined based on the frequency of InDels detected by next generation sequencing (“NGS”) at genomic sites targeted by each nuclease.

* Delivery by mRNA and LNP, dosing at 1 mg/kg.

* Mean of 79% genome editing efficiency as measured by the frequency of InDels detected by NGS at the targeted genomic site.

In addition, one of our most highly characterized type V nucleases, MG29-1, demonstrated high activity and specificity during multiple preclinical studies spanning from *in vitro* to NHP. Originating from a bacterial genome found in a deep sea hydrothermal vent, MG29-1 has a smaller protein (1,280 aa) and gRNA (~70 nt) compared with MG3-6 (1,135 aa and ~110 nt) and SpCas9 (1,368 aa and ~100 nt). MG29-1 has demonstrated up to 97% editing in primary mouse hepatocytes in culture (Figure 11a), superior liver editing to an exemplary SpCas9 guide targeting an overlapping genomic site when delivered to mice using a LNP that delivers primarily to the hepatocytes in the liver (Figure 11b), and on average 50% editing in the whole liver of NHP when delivered in a LNP that delivers primarily to the hepatocytes in the liver (Figure 11c, guide 2). Because hepatocytes make up about 70% of the cells in the liver, the 50% editing in the whole liver achieved in NHP translates to editing of about 70% of the hepatocytes which are the therapeutically relevant target cell.

Figure 11. Our Type V MG29-1 Nuclease is a Highly Active Natural Enzyme for *In Vivo* Genome Editing.

Figure 11a. MG29-1 achieved saturating levels of editing in primary mouse hepatocytes.

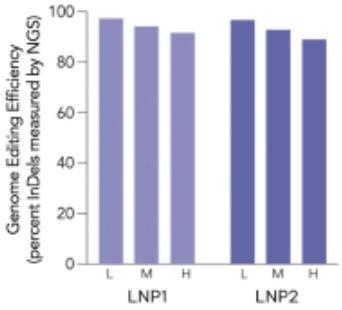


Figure 11b. MG29-1 has higher potency than SpCas9 when editing mouse liver cell genomes *in vivo*.

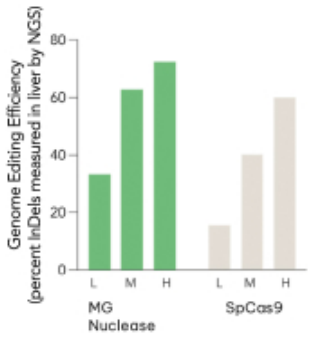
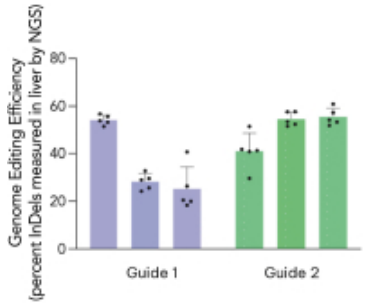


Figure 11c. MG29-1 demonstrates successful editing in NHPs.



* 50% whole liver editing = 70% hepatocytes editing.

* MG29-1 and SpCas9 were delivered by LNP with co-formulated mRNA and gRNA.

* gRNAs for both MG29-1 and SpCas9 have overlapping target sites.

* mRNAs for both nucleases use the same overall design and were codon optimized with the same algorithm.

* The SpCas9 gRNA incorporated extensive optimizations published in the literature.

* InDels were analyzed by NGS four days after IV infusion.

* L, M, H, refer to low, medium and high doses.

We use multiple unbiased, industry standard methods to identify putative off-target edits, which are then investigated using sensitive targeted sequencing. To date no detectable off target editing has been observed for the MG29-1 lead guide for one of our therapeutic programs at therapeutically relevant doses. Preliminary off-target assessment of MG29-1 lead guide for a second program has not identified detectable off-target sites to date which is consistent with MG29-1 being a highly efficient, specific and programmable nuclease suitable for broad *in vivo* genome editing applications. Beyond MG29-1, the multitude of nucleases in our toolbox enables us to screen an extensive guide library for any genomic locus of interest. For exemplary lead guides that have been examined for off-target editing we observe minimal or no detectable off-target editing.

Our ultra-small nucleases are efficient genome editors that unlock additional delivery modalities

Delivery of genome editing payloads is often restricted by the size limitations of the delivery vehicle. Therefore, we leverage our metagenomics database to find new nucleases that are significantly smaller than current systems. After searching through billions of predicted proteins from bioinformatically reconstructed microbial genomes, we uncovered several distinct types of ultra-small nucleases. Our lead ultra-small nucleases are significantly smaller than CRISPR SpCas9, enabling new and improved *in vivo* delivery methods and new possibilities for building base editing systems and prime editors that can be packaged in size-constrained delivery vehicles. Typical CRISPR Cas9 systems are about 1,300 aa in length whereas some of these new systems are just over 450 aa. Compact systems create potential advantages for delivery, manufacturing, and dosing. Furthermore, they can be delivered to organs and tissues currently only accessible by AAV, given that the nucleases are well-within the packaging limitations of these delivery vectors. The smaller size of these nucleases compared to previous systems potentially unlock target indications beyond applications in the liver. Because of their novel biochemistry and divergence from typical type II, we refer to some of these ultra-small nucleases as SMART. In addition, we identified several novel families of ultra-small type V nucleases. Unlike compact type V, and all other previously studied type V, SMART have a dual catalytic domain structure that enables engineering of nickase variants that can be used for base and prime editing.

Figure 12 shows that genome editing efficiencies achieved for SMART and compact type V nucleases are comparable to other lead systems. These results show that our ultra-small nucleases are highly efficient genome editing systems that have the potential for extensive therapeutic applications, including for those in which delivery is a limiting factor.

Figure 12. Our Ultra-Small Nucleases are Designed to be Highly Efficient Genome Editing Systems that Are Well-Within the Packaging Limits of AAV Vectors.

Figure 12a. Schematic representation of how our ultra-small nucleases are a fraction of the size of a typical CRISPR SpCas9 nuclease.

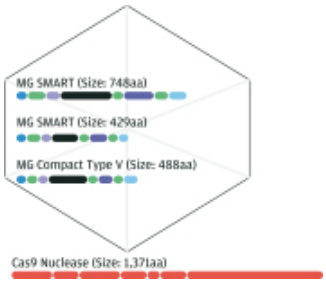
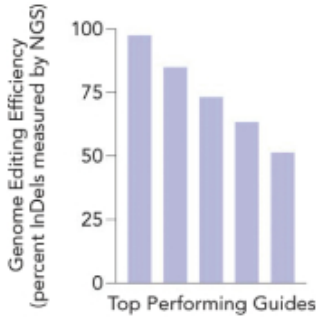
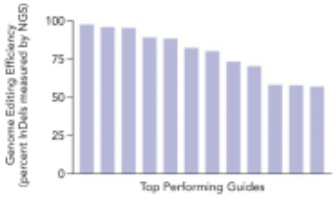


Figure 12b. SMART nuclease showed high editing efficiency in mammalian cells, prior to optimization.



* InDels are measured by NGS.
* Each bar represents a distinct guide.

Figure 12c. Compact type V nuclease showed high editing efficiency in mammalian cells, prior to optimization.



* InDels are measured by NGS.
* Each bar represents a distinct guide.

Base Editors

Overview

Figure 13. Schematic Showing the Two Primary Types of Base Editors under Development.

We leverage our toolbox of programmable nucleases to develop a highly targetable and flexible base editing platform compatible with various delivery technologies. Base editing modifies individual bases in the genome without making double-stranded breaks in the DNA. This approach uses a chemical reaction designed to create precise, predictable, and efficient genetic outcomes at the targeted sequence. These precise changes to individual base pairs in the genome can be used to correct or change genomic sequence in order to address disease. Notably, the most common class of genetic mutations are errors of a single base, known as point mutations. These point mutations, many of which could be addressed with a base editor, represent approximately 58% of all the known genetic errors associated with disease. Furthermore, base editors can be used to precisely knock-down genes by introducing premature stop codons or interrupting gene splice sites.

There are two types of base editors: ABEs and CBEs. ABEs convert adenine-thymine base pairs to guanine-cytosine base pairs. CBEs target cytosine-guanine and convert them to thymine-adenine. We are developing both ABEs and CBEs, which have been validated across multiple mammalian cell types and *in vivo*, to enable broad use of the base editing approach for addressing disease (Figure 13).

Base editors are composed of a targeting enzyme, typically a programmable nuclease that has been engineered to localize to a specific site in the genome but not cause a dsDNA break, and a deaminase, which is responsible for the chemical conversion of targeted genomic bases. Base editors can be engineered using modified nickase programmable nucleases that have been engineered to nick rather than cut genomic targets (i.e. a nickase variant). The nickase recognizes and binds to specific DNA sequences, determined by a gRNA, enabling deaminases that are fused to the nickase to modify the targeted bases. Typically, the modified bases are found on the single-stranded DNA that is exposed at a target site when the gRNA is bound to one of the strands of DNA. The efficiency of cytosine base editors can be improved by the addition of another enzyme called a UGI. The UGI protects edited bases against DNA repair machinery that would otherwise remove them and revert the edited sequence back to its original form.

Base editing results in one or more mismatched bases in the dsDNA, which are resolved by DNA repair mechanisms in the cell. Nickases are typically used such that the DNA strand opposite to the modified bases is nicked, thus biasing DNA repair pathways to favor the modified strand over the original sequence. The result is a precise change in one or more targeted bases without creating double-stranded breaks or requiring a donor template.

Our Approach

We are leveraging our toolbox of programmable nucleases and our metagenomics discovery platform to develop next generation base editing tools. Our programmable nucleases provide the ability to efficiently and precisely target locations in the genome required in order to potentially create a wide-variety of genetic medicines. In addition, the availability of ultra-small SMART effectors enables us to develop base editors that could be delivered to various target tissues and organs. While established base editing systems using SpCas9 require splitting the system into two AAV vectors for delivery, those developed from SMART are designed to be within the packaging limitations of a single AAV. We have discovered and engineered what we believe to be two of the smallest base editors developed to date, one SMART ABE that is 623 aa in length and another SMART ABE that is 969 aa. These systems provide substantial opportunities for vector optimization compared with SpCas9 ABEs that are 1,588 aa. Furthermore, the flexibility of the modular, chimeric nuclease platform, enables rapid optimization of base editors capable of editing at a multitude of target sites, since engineering and optimization applied to one base editor can rapidly be applied to other systems with the capability of targeting to new genomic sites.

Given that base editors require deaminases, and a UGI in the case of cytosine base editors, substantial enzyme discovery beyond programmable nucleases has been required in order to develop highly efficient base editors that have the potential to overcome the limitations of the current technology. We have mined over three million deaminases in order to identify enzymes with the capability to function as part of base editing systems. In many cases these novel deaminases have required minimal protein engineering to achieve therapeutically-relevant editing efficiencies in multiple studies. The ability of our metagenomics discovery platform to identify novel enzymes with high activity makes it possible to rapidly develop differentiated technology that surpasses first-generation systems.

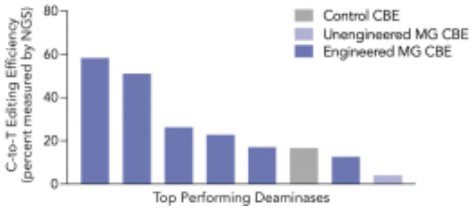
Our base editors are highly active in mammalian cells across various genomic targets

Figure 14 ABE and CBE Developed from Type II MG3-6 System Have Been Shown to be Highly Active in Mammalian Cells.

Figure 14a. ABE screening identified guides capable of achieving saturating levels of A-to-G genome editing in mammalian cells.

* Optimized ABE construct tested in Hepa 1-6 cells with mRNA delivery.

Figure 14b. CBE screening identified highly active deaminases for C-to-T editing, compared to published control.



* Unoptimized CBE construct tested in HEK293T cells with plasmid delivery.

* CBE control uses hyperactive CDA A0A2K5RDN7.

Our base editors are highly active and progressing towards *in vivo* therapeutic applications. Both of our ABE and CBE systems have been tested in mammalian cells in order to determine editing efficiency, where a large collection of guides spanning various genomic loci were tested for each system. Figure 14 shows that an optimized ABE construct delivered by mRNA achieved up to 96% editing efficiency, while a CBE tested without construct optimization using a less-efficient plasmid delivery approach achieved up to 58% editing efficiency. Notably, our CBE outperformed an industry-standard control CBE by several fold in this benchmarking experiment. Additional optimization of these already competitive CBE systems is expected to rapidly improve editing efficiencies to create systems for *in vivo* therapeutic applications, while the ABE systems have already progressed into *in vivo* studies.

Our base editing platform has broad in vivo therapeutic potential

Figure 15. Lead ABE System Developed from Type II MG3-6 System Demonstrated High Activity in Primary Cells and in an *in vivo* Mouse Model.

Figure 15a. Our lead ABE system efficiently edited primary mouse hepatocytes at example target sites.

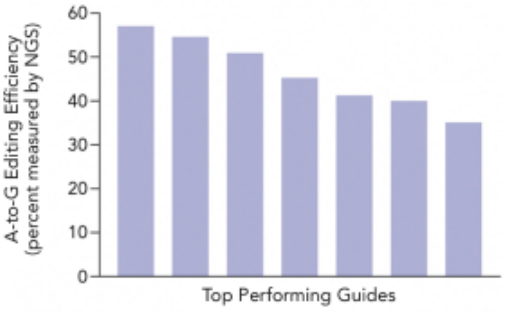
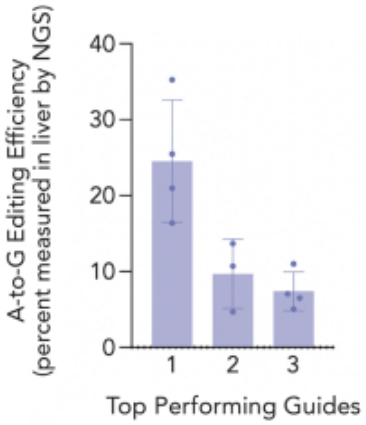


Figure 15b. Our lead ABE system demonstrated activity *in vivo* when delivered to mouse livers by mRNA and LNP.



In order to demonstrate the utility of the MG3-6 ABE platform for *in vivo* base editing, a lead construct design was tested both in primary cells and in mice. Multiple guides were tested in each study, designed to target different genomic loci. Figure 15 shows the results of these evaluations of the ABE platform, where up to 60% editing efficiency was demonstrated in primary hepatocytes and 35% efficiency was achieved across all liver cells in an initial *in vivo* study using mRNA and LNP delivery. Given that approximately 70% of liver cells are hepatocytes, and therefore targetable by the LNP platform, this editing experiment suggests that approximately 50% of all targetable cells were successfully edited. We believe this level of editing, which is comparable to other initial *in vivo* base editing studies, supports the potential to rapidly progress towards therapeutic applications. Given that both the ABE and CBE data shown in Figures 14 and 15 are based on a chimeric MG3-6 nickase, we anticipate that the broad targetability of this system will enable rapid development of multiple potential new therapeutic applications of base editing technology.

Our SMART have been engineered to create ultra-small base editors, expanding the potential deliverability of base editing technology

Figure 16. SMART Can be Engineered into Ultra-Small Base Editors with Naturally High Editing Efficiency and AAV Compatibility.

Figure 16a. Ultra-small SMART base editors are a fraction of the size of a typical Cas9 system, enabling AAV delivery.

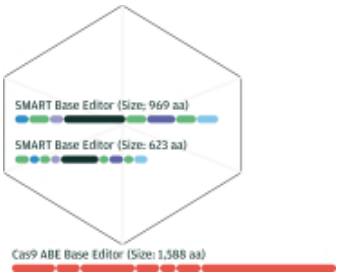
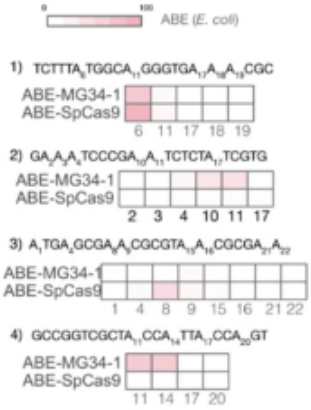
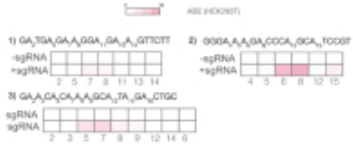


Figure 16b. SMART ABE exhibited a similar editing profile *in vitro* compared to SpCas9.



* SMART ABE-MG34-1 base editing at four genomic targets loci in *E. coli.* vs. reference SpCas9 system.
* Heatmap values represent the mean of two independent experiments.

Figure 16c. SMART ABE were active in mammalian cells.



* SMART ABE achieved up to 22% base editing efficiency in human cells.
* Base editing efficiency shown at three genomic targets tested in human HEK293T cells.
* Heatmap values represent the mean of three independent experiments.

* The target sequence for each locus is shown above the heatmap.
* Heatmaps represent the percentage of NGS reads supporting an edit at each position.

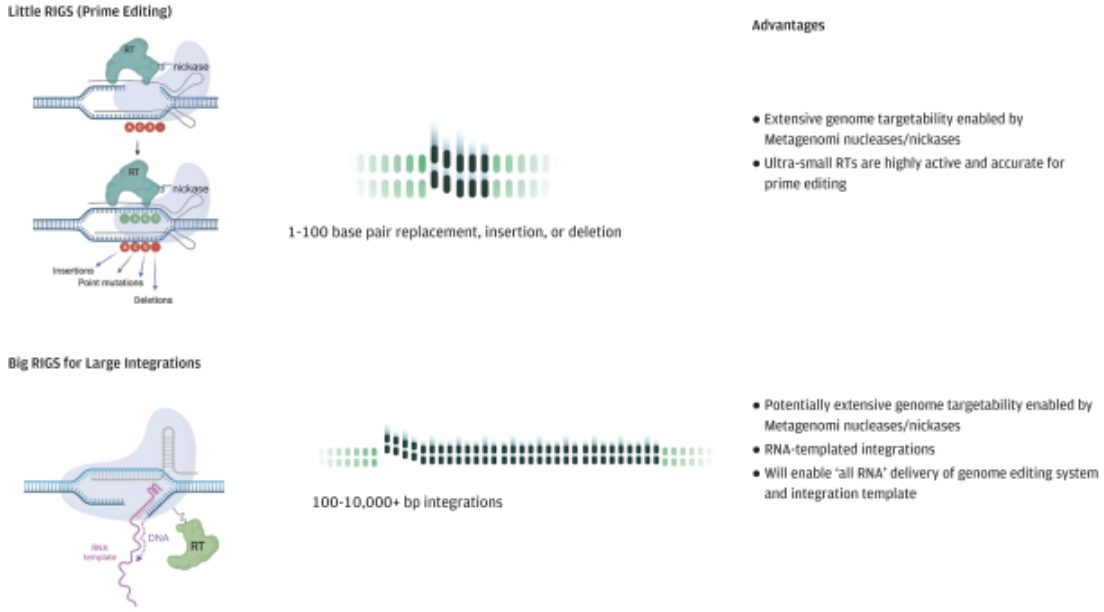
Source: Goltsman et al 2022 Nature Communications

Figure 16 illustrates how our ultra-small SMART nucleases provide an opportunity to develop compact base editors with the potential to improve delivery using existing AAV technology. Our engineered, but unoptimized SMART ABE systems were observed to edit target loci at levels comparable to reference SpCas9 systems, and with up to 22% editing efficiency in mammalian cells. Achieving this level of efficiency with an unoptimized system, comparable to initial base editing readouts achieved with SpCas9, indicates that additional engineering has the potential to rapidly and significantly improve editing efficiencies. The SMART ABE highlighted in Figure 16 is one of the smallest nickase-based systems with activity in mammalian cells (969 aa), and at 623 aa another SMART ABE under development is even smaller. Together, these systems provide us with unique opportunities to optimize base editors using the naturally compact, precise, and programmable SMART platform.

RNA-Mediated Integration Systems: RIGS for prime editing and large genomic integrations

Overview

Figure 17. Schematic Showing Application of RIGS for Small Replacements and Large Integrations.



Programmable nucleases, which use dsDNA breaks to trigger DNA repair machinery to enact specific genomic changes, and base editors, which use chemical modifications to convert specific base pairs in the human genome, cannot address all mutations that cause disease. RIGS are being developed in order to encode any type of genomic modification in an RNA template, and thus create any type of genome modification necessary to address a disease (Figure 17). RIGS involve using RTs to convert genomic corrections encoded in RNA into DNA, and are engineered with programmable nucleases or nickases to incorporate newly synthesized DNA messages into the genome at specified target sites. Importantly, any genomic modification can be encoded in the RNA template. Furthermore, the potential for having an all-RNA format for the system, including delivery of the protein components as mRNA, could simplify delivery for some applications. For example, the all-RNA format could enable use of LNPs for delivery of systems to the liver for large, targeted genomic integrations. The enzymatic nature of the genome integration, combined with the ability to deliver the entire system as RNA is of particular importance when considering large integrations, since the delivery of DNA templates at concentrations required for integration mediated by DNA repair machinery can be toxic.

One implementation of RIGS is to use our programmable nickases and RTs for prime editing. Prime editing can repair diverse mutations, including all types of point mutations, deletion mutations, insertion and duplication mutations and insertion-deletion mutations. As with other genome editing approaches, prime editing systems, and RIGS more broadly, create permanent modifications at natural genomic locations, resulting in durable edits that are passed on through cell divisions and that are expressed under natural mechanisms specific to the gene or target of interest. One key aspect of prime editing is the modification of a CRISPR gRNA to create a pegRNA (“prime editing gRNA”). In this design, the typical backbone and targeting components of the gRNA are maintained; however, additional sequence is added to the guide in order to code for a desired genomic correction and to prime a RT to begin synthesizing new DNA sequence. During prime editing a portion of the pegRNA containing the genomic modification is copied into DNA at a specific site in the genome sequence. Once

the RT has incorporated the new DNA sequence into the target site, DNA repair machinery will finalize the genome edit by removing the corresponding section of the original sequence, synthesizing any required complementary DNA, and ligating the ends of the nicked DNA strands. We have discovered a collection of novel RTs that can be combined with our nickases to perform prime editing in mammalian cells at levels and with accuracy that surpasses industry-standard systems.

Current prime editing and RNA-templated editing approaches are limited by the size of the RNA template that can be incorporated into a genomic site. This limitation is based on multiple aspects of the system design, including 1) the need to encode gRNA and RT template sequences in a single pegRNA, and 2) the processivity and fidelity of the RT. The first constraint can be addressed by creating new system designs in which the gRNA and repair template are encoded in separate RNA molecules, where additional engineering ensures that the templates and RT are able to co-localize to the nucleus, and more specifically, to targeted sites in the genome. Regarding the second point, processivity and fidelity are biochemical characteristics that relate to the ability of an RT to traverse through large and structurally complex RNA templates (processivity) and to do so without introducing errors (fidelity). We have identified and developed novel RTs that we believe surpass the processivity and fidelity requirements for therapeutic delivery of transgenes as RNA templates, for example in order to treat diseases by introducing a complete and correct copy of a gene in order to overcome a loss-of-function mutation. Furthermore, we are engineering these RTs with programmable nucleases and nickases to achieve large, targeted genomic integrations.

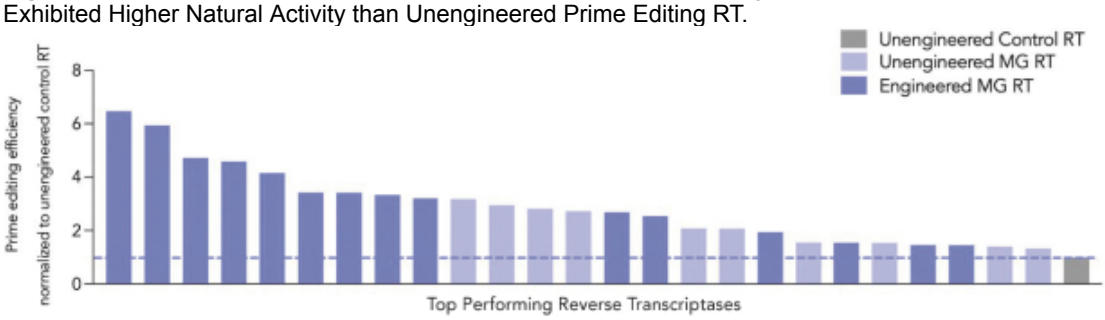
Our Approach

Similar to base editing, development of RIGS leverages our expansive platform of programmable nucleases that can be converted into nickases, including ultra-small SMART, as well as a metagenomics discovery approach that enables the rapid identification of novel RTs that have the specific characteristics necessary for different genome editing applications. The targetability of our toolbox of programmable nucleases will enable essentially any target sites of interest to be addressed, and compatibility with ultra-small SMART effectors could expand the deliverability of RIGS to therapeutically relevant tissues and organs.

Little RIGS describes systems used for prime editing (e.g., for small genomic replacements such as transversions, transitions, insertions, and deletions), while Big RIGS describes systems capable of making large targeted genomic integrations. The mechanisms driving these systems differ from one another, but both are based on using a reverse transcriptase to incorporate genomic corrections encoded in RNA into target sites in the genome identified by a programmable nickase or nuclease. We identified five million RT candidates from novel families in order to find systems for Little and Big RIGS development. RTs found in nature are highly diverse, but typically do not have all the characteristics suited towards being useful in a therapeutic context. Based on measured enzyme characteristics such as fidelity and processivity, RTs are nominated and combined with our programmable nucleases/nickases for either Little and/or Big RIGS engineering. Our Little RIGS are benchmarked against industry-standard prime editing systems in order to rapidly identify top-performing systems. Currently, we believe no genome editing system has been described that is comparable to Big RIGS. Our Big and Little RIGS are undergoing indication-specific optimization. We believe that this combination of discovery and system optimization will enable the rapid development of best genome editing systems that, together, can enact any type of genomic edit.

Our RIGS have shown complex prime editing in mammalian cells

Figure 18. Our RTs Outperformed Benchmarks for G-to-T Prime Editing in Mammalian Cells. Graph Depicts a Broad Range of RTs that Exhibited Higher Natural Activity than Unengineered Prime Editing RT.



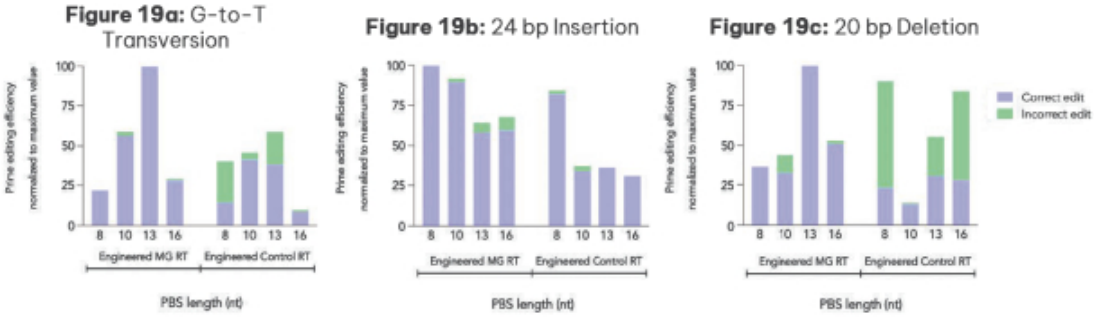
* Unengineered prime editing control RT is from Moloney murine leukemia virus ("MMLV").

* RTs were cloned into a plasmid backbone that was co-transfected with chemically synthesized pegRNAs designed to edit the genome of human HEK293T cells.

* Genomic DNA was isolated 72 hours post transfection and target loci were amplified for NGS to evaluate editing outcomes.

Our RTs are benchmarked against natural and engineered variants of an RT widely used for prime editing in order to identify highly active natural enzymes for further optimization along with our programmable nickases. Figure 18 shows that our natural RTs are more active than a control RT when used for prime editing. In addition, our minimally engineered RTs demonstrated up to 6 times higher activity than the unengineered control RT for a G-to-T change. This indicates that we can potentially optimize gene editing activity quicker than comparable prime editing RTs. Figure 19 shows that a minimally engineered Metagenomi RT has editing efficiencies equivalent to or better than engineered, industry-standard prime editing RT. Notably, this has been achieved with an ultra-small RT that is only 251 aa in length, compared with the 671 aa of the standard prime editing RT. For therapeutic applications, complex corrections must be precise, and the precision of RIGS depends on the unique characteristics of the reverse transcriptase used. Figure 19 also shows that one of our RTs has demonstrated significantly higher editing accuracy compared to the engineered, industry-standard control. In order to measure optimal activity for new systems, multiple primer binding sequence (PBS) lengths must be tested. In some case, Metagenomi RT are more active across a broader range and with smaller PBS lengths compared with the control, providing more flexibility around pegRNA design. We believe our RIGS are distinguished from typical systems used for prime editing by the high efficiency and accuracy of the RTs, as well as the broad targetability of our programmable nickases.

Figure 19. Our Ultra-Small RTs are Efficient and Accurate Systems for Conducting Complex Genomic Corrections in Mammalian Cells.

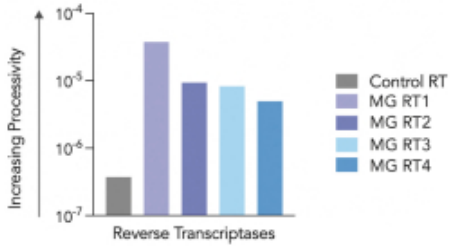


* The engineered prime editing benchmark RT is the MMLV variant used in PE2 prime editing systems.
* RT were tested with an unoptimized plasmid delivery system that enables high-throughput benchmarking of novel RT to identify leads.
* Plasmids encoding RT and Cas were co-transfected with chemically synthesized pegRNAs designed to edit the genome of human HEK293T cells.
* Genomic DNA was isolated 72 hours post transfection and target loci were amplified for NGS to evaluate editing outcomes.

Our novel RTs are selected to enable the development of Big RIGS for RNA-templated, large, targeted therapeutic transgene integration

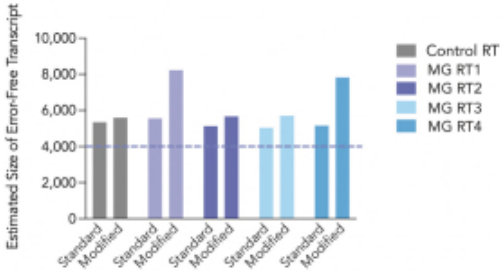
Figure 20. Our RTs Have Been Observed to be Active, Processive, and High-Fidelity.

Figure 20a. Our RTs were more processive than RT typically used for prime editing, enabling transcriptions of large gene templates in mammalian cells.



* Prime editing benchmark RT is MMLV.
* Processivity was measured by qPCR quantification of cDNA produced in mammalian cells from 4 kb templates.
* Typically, less than 1% of 4 kb templates are fully transcribed by MMLV.

Figure 20b. Our RTs were more accurate than industry-standard RT.



* Template modifications are N1-methylpseudouridine.
* Fidelity was measured by NGS.

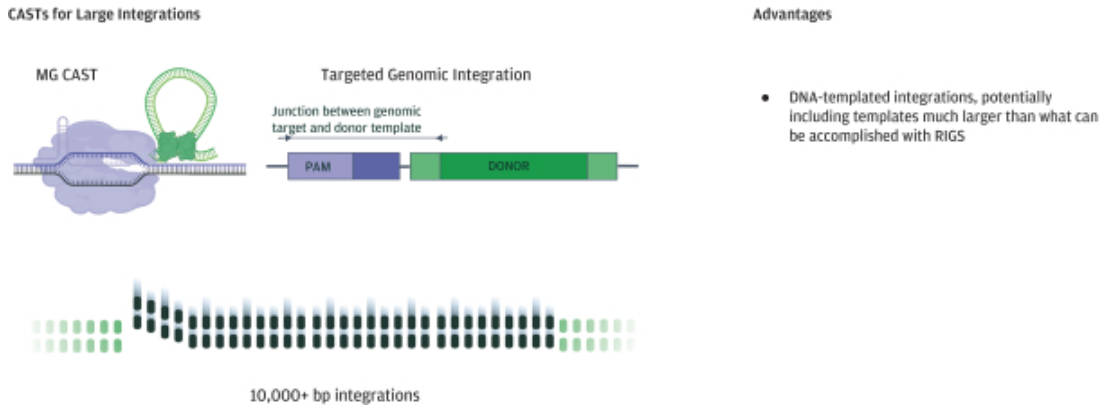
Our RTs were screened based on their activity and processivity in mammalian cells in order to identify highly active systems capable of reverse transcribing RNA templates over 4,000 base pairs in length (>4 kbp). We chose the 4 kb benchmark as many potential therapeutic targets could be addressed with a genomic integration of this size (current prime editing systems are limited to RNA-templated integration around 100 bp). In Figure 20, our best-characterized RTs were compared with industry standard systems in order to benchmark their

activity, processivity, and fidelity. When tested in mammalian cells, our RTs were routinely able to fully transcribe a 4 kbp template into DNA. In Figure 20a, we show that our RTs demonstrated orders of magnitude more processivity than control RT when tested on these large templates, which we believe is a strong indication of being able to convert therapeutically relevant templates delivered as RNA into DNA for genomic integration. Importantly, Figure 20b also shows that on average our RTs transcribed over 4 kbp without introducing errors. Furthermore, template modifications (N1-methylpseudouridine), which could enable delivery of RNA templates less likely to trigger an immune response, improved fidelity. We are engineering our RTs along with our programmable nucleases and nickases for targeted genomic integration of a donor template delivered as RNA. Initial readouts show that when combined with a CRISPR effector and targeting gRNA, Metagenomi RT are able to incorporate newly synthesized DNA from an RNA template into a target site. In principle, these systems, which represent a major step forward in the genome editing space, could be delivered entirely as RNA and could enable large, targeted exogenous gene integrations.

DNA-Mediated Integration Systems: CAST and other approaches to achieving large genomic integrations

Overview

Figure 21. Schematic Showing Application of CAST for Large, Targeted Genomic Integrations.



Genome editing approaches based on nucleases, base editing, and prime editing are capable of precisely modifying the genome to address disease. However, for therapeutic approaches that necessitate expression of an exogenous gene or complete gene correction, large integration approaches are needed. Many individual diseases are associated with a wide variety of genetic mutations and thus may require an entire healthy gene to counteract each of the many different underlying causes. For example, there are over 1,800 mutations in the CFTR gene associated with cystic fibrosis. While in theory most of these mutations could be addressed using distinct and mutation-specific base or prime editing systems, this would require the optimization and translation of a large number of genome editing therapies. Alternatively, integration of a complete and correct copy of the CFTR gene could potentially cure patients with varying mutations in a one-and-done treatment. Directed DNA integration has largely been considered the ultimate goal of corrective genome editing, where enzymatic systems with this capability could provide safe and sustained therapeutic protein expression. By developing DNA-mediated integration systems and RIGS, we are at the forefront of creating a new class of genome editing therapeutics.

Many efforts over the past decades have sought to achieve direct DNA integration in order to develop treatments that work across diverse tissues, cell types, and genetic variants. Established transposase and

lentiviral systems are efficient at inserting large DNA cargos into the human genome but result in non-specific and sometimes hyperactive integrations that have led to severe adverse events during clinical trials. Furthermore, recombinases have gained attention recently as a possible solution, given that they are able to incorporate large (>10 kbp) genomic cargos in a non-random, site-specific manner in mammalian cells. However, these systems typically require additional genome editing tools, such as prime editing systems, in order to first install recognition sites into the genome. These recognition sites are required by the recombinase and thus control where the enzyme can incorporate new genomic material.

CASTs are a new technology that is exciting because of their programmable, site-specific, and enzymatic integration capabilities. While these systems have been challenging to translate for mammalian cell and human therapeutic applications, we have had recent breakthrough success by demonstrating that the most compact type of CAST, based on catalytically dead nucleases, are capable of programmable and targeted DNA integration into the genome of human cells. Our CASTs are being developed in order to enable large (>10 kbp), targeted genomic integrations for therapeutic applications. This technology has the potential to address a large collection of complex genetic diseases driven by a loss of function mutation, such as cystic fibrosis.

Our Approach

We are pursuing multiple approaches to achieve targeted, large genomic integrations, including both RNA and DNA templated systems. Unlike RNA-templated systems that undergo a copying mechanism in order to integrate into the genome, DNA templated systems orchestrate the direct mobilization of the template into the genome. This direct integration avoids copying mechanisms that may be inhibited by certain template features, and thus allows for the incorporation of much larger templates compared with RNA-mediated systems. Given that RNA-templated systems may have delivery advantages for some applications, we are developing both technologies to have the broadest potential to address diseases through targeted integration of large transgenes.

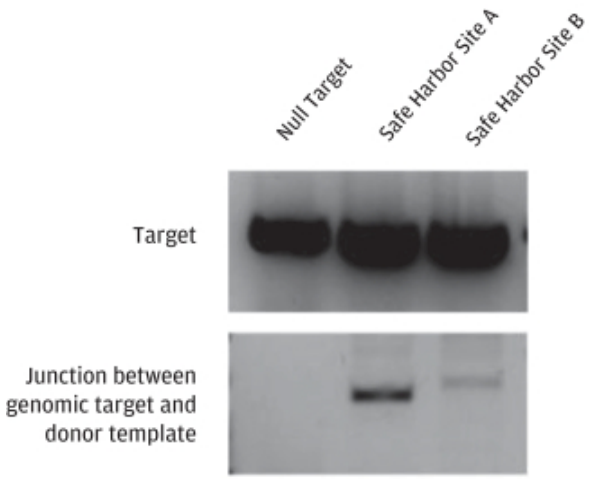
The development of our novel CAST systems was made possible by the discovery and engineering of active natural variants from our metagenomic library. CASTs are being developed to achieve accurate and efficient integration of large DNA cargos at a target locus, without depending on dsDNA breaks. CASTs are unique in that they combine the programmability of a CRISPR effector with the enzymatic integration capability of a transposase. We hypothesized that activity in human cells could be accomplished by combining novel system discovery with systematic development designed to tune the systems to the mammalian nuclear environment. We conducted a detailed survey of newly-discovered CAST systems and demonstrated the ability of novel systems for programmable integration of a transgene *in vitro* and in *E. coli*. The high efficiency of our systems enabled us to demonstrate directed transposase activity into single copy, safe harbor loci in the genome of human cells, as shown in Figure 21. Our results will enable the rapid development and optimization of CASTs to address unmet therapeutic and biotechnological needs. We believe we are the first to achieve this milestone using the most compact variety of CASTs.

We are also developing systems based on recombinases and other mobile elements that can be used in combination with programmable nucleases, including catalytically dead variants, as well as with Little RIGS in order to affect large, targeted genomic integrations under circumstances where CASTs are not the ideal genome editing technology. Beyond therapeutic use, novel systems with these capabilities could enable synthetic biology, antibody discovery, functional genomics, animal model development, and various other unmet needs in the biotechnology space.

Our novel and engineered CASTs are capable of integrating large DNA cargo at a safe-harbor locus in the human genome

We have shown preclinical proof-of-capability for our CASTs by demonstrating targeted integration of a large DNA template in the genome of mammalian cells. Translation from bacteria to human cell editing required protein engineering to mitigate the complex coordination between multiple protein and nucleotide components. Figure 22 shows PCR-based confirmation achieved by detecting the junction between the donor DNA template and the target sequence in the genome of HEK293T cells. Targeted integration was achieved by delivering the CAST system as an all-in-one plasmid, while the DNA donor is delivered on a second plasmid. We believe the ability to target payloads to a single copy, safe-harbor locus now allows for further therapeutic-driven optimization and development.

Figure 22. Our CASTs Demonstrated Targeted Integration of a DNA Template at a Safe-harbor Locus in the Genome of Mammalian Cells.



* PCR of junction between template and target confirms integration at target loci in HEK293T cells.

* Successful transposition is indicated by a band of the correct size in the gel in treated samples, but not in the null target (control) sample.

* Sequencing of PCR products from the junction between the template and target confirmed integration.

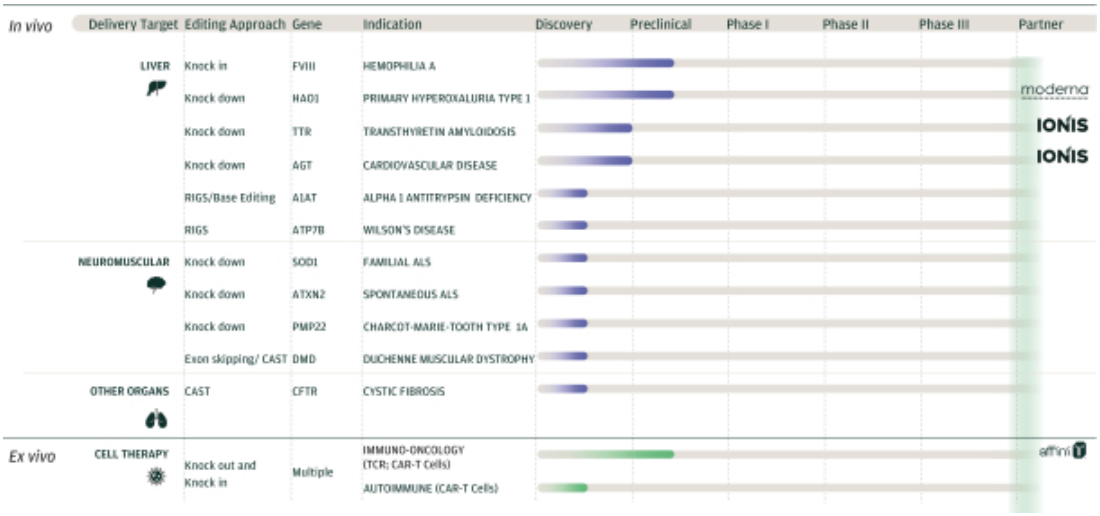
Future Novel Editing System Discoveries

Our scientific underpinnings based in metagenomics provides a continuous engine for discovering and developing potentially next generation genome editing systems. As we continue to build upon our metagenomic library, we expect to make additional discoveries of novel technology, and expand our toolbox to further unlock the field of genome editing.

Our Pipeline

We are taking a stepwise approach deploying our genome editing toolbox to develop potentially curative therapies for patients. Our lead programs are selected to both address important diseases and to establish new standards in targetability, precision, efficiency, and scope of editing capabilities. Figure 23 summarizes the portfolio of programs that we and our partners are advancing, as we aim to match the optimal genome editing tools for each indication. Each of these indications were chosen based on our conviction in the underlying biology, existence of validating preclinical and clinical data, availability of pharmacodynamic and translational tools to assess early proof-of-concept, relevant value-supporting outcome measures, and ongoing clinical unmet need. Our lead programs capture an ever-growing set of translational learnings and insights that will inform and accelerate future programs.

Figure 23. Therapeutic Translation.



Hemophilia A—novel, durable, knock-in approach for expression of Factor VIII

The Disease

Hemophilia A is the most common X-linked inherited bleeding disorder and is caused by mutations in the FVIII gene leading to loss of functional FVIII protein that impacts the body's ability to form normal clots in response to injury. FVIII is normally produced in the liver within sinusoidal endothelial cells and is then secreted into the bloodstream where it acts as a cofactor for the catalytic activation of Factor X in the clotting pathway. The lack of functional FVIII disrupts the normal clotting cascade and predisposes patients to increased risk of bleeding, either spontaneously or in response to injury or surgery. Repeated bleeding episodes in joints or soft tissues can lead to progressive joint damage, inflammation, pain, and mobility impairment. Intracranial bleeding is of greatest concern as this can be rapidly fatal or lead to major morbidity.

The severity of hemophilia A is directly correlated to the amount of residual FVIII activity. Severe hemophilia is defined as less than 1% of normal FVIII activity, moderate hemophilia defined as 1-5% of normal FVIII activity and mild hemophilia defined as 5 to 40% of normal FVIII activity. There are estimated to be nearly 30,000 patients with hemophilia A in the United States and more than 500,000 patients with hemophilia A globally. Of these, approximately 60% have severe disease and are at the greatest risk of spontaneous life-threatening bleeding events. In these patients, diagnosis typically occurs in infancy due to exaggerated bleeding in response to minor injury or routine medical procedures. As the inheritance of hemophilia A is X-linked, the vast majority of patients are male.

Limitations of Current Approaches

The standard of care for patients with severe hemophilia A involves life-long repeated IV infusions of recombinant FVIII preparations prophylactically and in response to bleeding events. The major limitation of this approach is fluctuating FVIII activity levels, with trough values that can still result in breakthrough microscopic and macroscopic bleeding events, particularly within sensitive and previously damaged joints. Additionally, frequent FVIII infusions are inconvenient, which can be associated with suboptimal compliance, and in some patients result

in inhibitor formation (antibodies against FVIII) that compromise efficacy. More recently, emicizumab, a bispecific antibody, has been approved for hemophilia A in the United States that acts as functional FVIII mimetic in binding Factors IXa and X to support catalytic activation. This antibody approach has the benefit of a longer half-life than typical recombinant FVIII protein infusions that allows for less frequent administration but has the drawback of not being a true FVIII protein replacement therapy and breakthrough bleeding has been reported. Both the bispecific antibody and FVIII protein replacement approaches have a high economic burden (estimated lifetime cost of $15 to 18 million per patient).

Valoctocogene roxaparvovec, the first hemophilia A gene therapy, was conditionally approved for use in Europe in August 2022 and was approved in the United States in June 2023. This genetic medicine delivers a FVIII gene construct to the liver using an AAV vector. Once transduction of liver cells occurs, the FVIII gene resides in an episomal state (meaning not integrated in the genome) where it is transcribed from an artificial engineered exogenous promoter to produce FVIII mRNA which is translated into FVIII protein. This gene therapy approach has the potential benefit of constant production of FVIII protein by the liver; however, longitudinal clinical data has demonstrated that FVIII levels drop over time. To date, repeat dosing of a gene therapy has not been possible due to the production of high titers of neutralizing antibodies to the AAV vector. Importantly, AAV gene therapy is also not a feasible treatment approach for infants or children due to the high degree of liver growth during pre-adulthood that would dilute out the episomal FVIII gene during progressive rounds of liver cell division. Thus, there continues to be a significant unmet need in hemophilia A for a curative therapy that can provide life-long protection from bleeding events in adults and children.

Our Approach and Results

Experience with early hemophilia A gene therapy approaches suggest that morbidity and mortality from the disease can be markedly reduced by achieving only moderate amounts of stable FVIII expression. For instance, achieving stable FVIII activity above 5-10% of normal activity level has the potential to convert a patient with severe hemophilia at risk of catastrophic bleeding into a patient only at risk for bleeding in the setting of major trauma or surgery. Achieving stable levels of FVIII above 15% activity level could provide complete joint protection and may allow patients to have a functional cure from their disease.

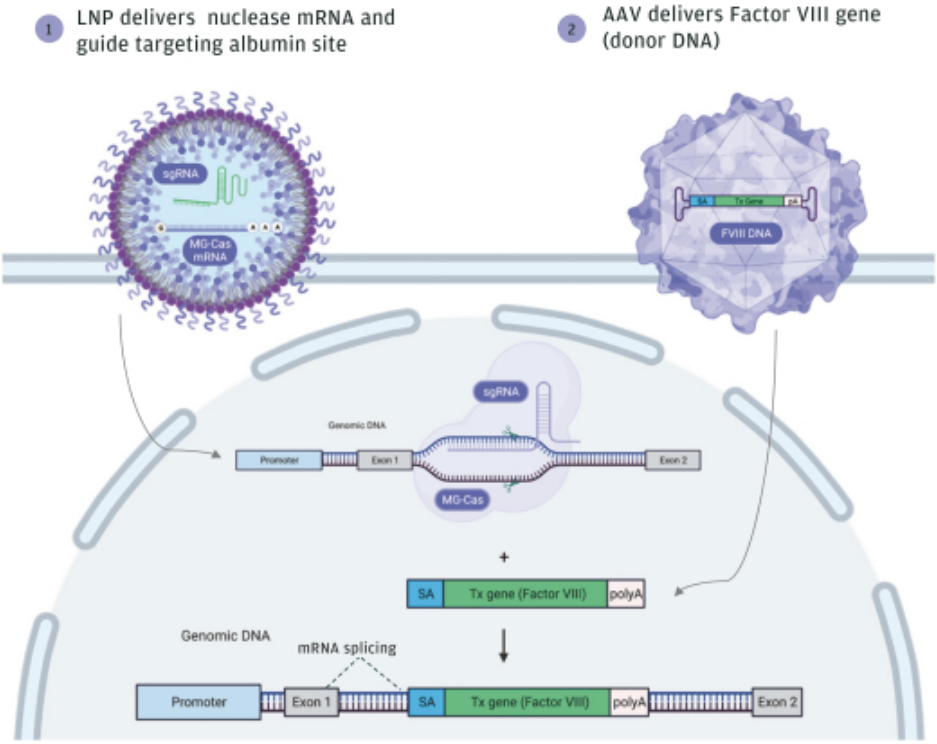
Rather than provide the FVIII gene in an episomal location, which risks dilution from cell division or cell death as well as episomal transcriptional silencing, our approach is to insert a FVIII DNA cassette into a “safe harbor location,” within an intron of the albumin gene that is not expected to have deleterious effects. FVIII expression is then driven by the strong native albumin promoter. This approach has previously been demonstrated in preclinical studies to lead to therapeutically relevant expression of a different clotting factor (Factor IX) with negligible impact to systemic circulating albumin levels. Our FVIII knock-in approach is designed to provide stable expression and clinically relevant circulating levels of FVIII, even at low integration rates because of the strength of the albumin promoter.

Our approach is fundamentally different from the AAV gene therapy approaches. AAV gene therapy approaches use a viral vector to deliver a replacement FVIII gene driven off a non-natural promoter that exists in an episomal state (not integrated in the genome). This AAV FVIII gene therapy approach has been associated with the loss of FVIII expression over time in patients, a phenomenon hypothesized to be due to a combination of loss of the DNA encoding the FVIII gene (due to liver cell replication) and silencing of the episomal FVIII expression. Because our approach is designed to permanently integrate the FVIII gene into the genome of the patient, the FVIII gene should not be lost from the liver when the liver cells divide (because it is integrated in the genome and therefore transferred to the daughter cells during cell division), which may allow for a therapeutic option for children with hemophilia. Silencing of expression may be less likely to occur with our approach because we are using an endogenous albumin promoter rather than a synthetically designed promoter in a non-natural episomal state.

As shown in Figure 24, our hemophilia A genome editing program has two components: a LNP component that is designed to deliver mRNA along with a gRNA to the liver to produce a highly efficient and specific nuclease to

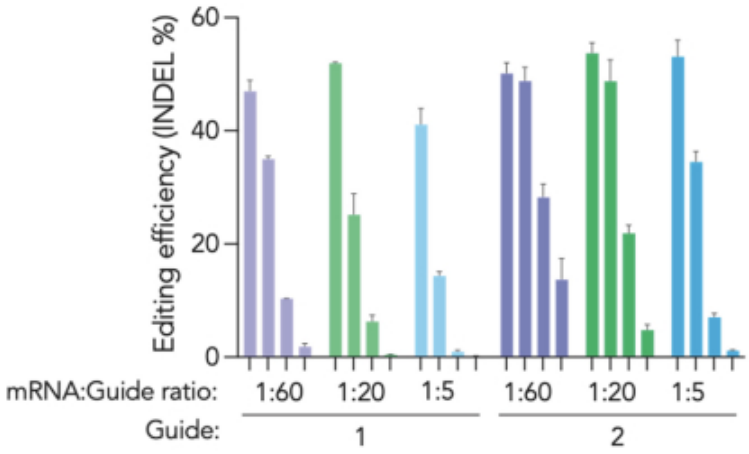
create a precise cut at the albumin safe harbor gene locus; and an AAV vector that is designed to deliver the donor template FVIII DNA that becomes inserted into the nuclease cut site by the naturally occurring DNA repair process called non-homologous end joining. The DNA template encodes a FVIII protein, and the sequence has been optimized to improve expression. In preclinical mouse models we have demonstrated that this FVIII knock-in approach leads to stable integration and clinically relevant circulating levels of FVIII.

Figure 24. Therapeutic Approach to Hemophilia A Genome Editing.



We have performed guide RNA screening in human and mouse cells to identify both candidate clinical guides and mouse surrogate guides. In the case of the human guide screen, a total of 77 guides for three of our nucleases were screened against albumin intron 1 in liver cell lines, and two guides (called guide 1 and guide 2) were selected as potential leads. Primary human hepatocytes (“PHH”) isolated from the livers of deceased individuals are the most appropriate preclinical model to evaluate human liver genome editing. Guide 1 and guide 2 displayed dose dependent editing in PHH with guide 2 exhibiting the highest potency (Figure 25). Genome editing nucleases can edit at sites other than the intended target site, an activity that is dependent on the specific nuclease and guide. Editing at non-target sites (called off-target editing) is undesirable due to the potential to cause damage to the host cell DNA (commonly called “genotoxicity”). We have analyzed off-target editing of guides 1 and 2 in PHH using an industry standard in-cell method that identifies potential off-target sites. Guide 2, the most potent guide that is being advanced to our next NHP study exhibited low off-target editing when evaluated by this in-cell oligo integration method with only two potential off-target sites detected at low frequencies of 0.07% of on target editing. Guide 1, that is less potent and remains as a backup, displayed a less favorable off-target profile when assayed by the oligo integration method with 1 potential off-target site detected at 5% of the on-target editing frequency. Both guides are being further evaluated using a combination of in silico prediction and biochemical assays to nominate potential off-target sites that will be tested in PHH to determine if any of these potential off-target sites are bona fide off-target sites.

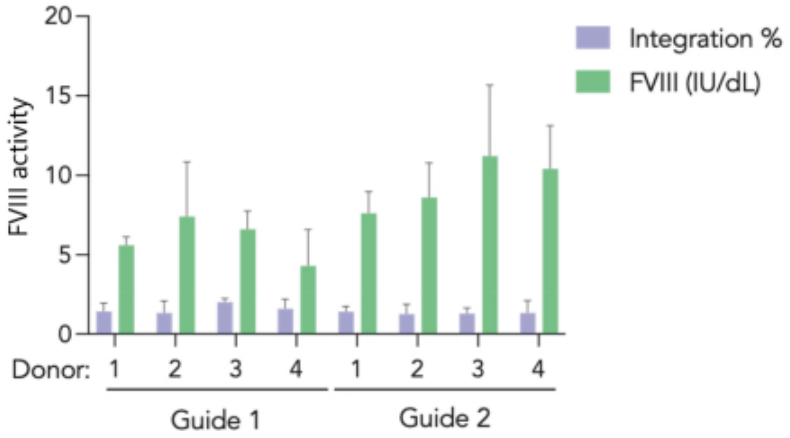
Figure 25. Editing at the Human Albumin Locus by Lead Nuclease and Guides in Primary Human Hepatocytes. Each Set of Four Bars is a Dose Response (from High Dose to Low Dose Going from Left to Right) Performed at Three Different Molar Ratios of mRNA to gRNA.



* Each set of four bars is a dose response (from high dose to low dose going from left to right) performed at three different molar ratios of mRNA to guide RNA

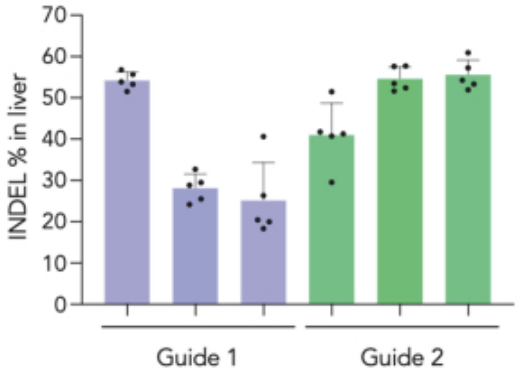
We have demonstrated the feasibility of the FVIII gene knock-in approach in mice with several mouse specific guides and different FVIII DNA donor cassettes as shown in Figure 26, with integration of the FVIII gene leading to FVIII mRNA expression and therapeutically relevant levels of FVIII protein in the blood. In these experiments, we quantified integration of the FVIII gene in the correct (forward) orientation at the target site in the albumin locus at frequencies between 1% to 2%. In the same mice, we measured FVIII protein in the blood at levels of 5-10% of normal, levels that would be sufficient to prevent the majority of bleeding events in hemophilia patients. Efforts to further optimize the DNA donor cassette to potentially achieve even higher levels of FVIII protein per integrated copy are ongoing.

Figure 26. Integration and Expression of FVIII in Rodents after Genome Editing.



The editing efficiency of the two lead gRNA sequences (guide 1 and guide 2) were evaluated in non-human primates ("NHPs"). Guide 1 is a perfect match to the target sequence in the NHP genome while guide 2 required a single nucleotide change in the spacer to match perfectly to the target sequence in NHPs. The same nuclease mRNA sequence was used with both guides and the guide and mRNA were co-delivered with the same LNP formulation by IV infusion of three cynomolgus macaques per group at a dose of 1.25 mg RNA per kg body weight. The editing efficiency in five different regions of the liver (representing the different liver lobes) were measured by determining the InDels at the target site using next generation sequencing in each of the three animals per treatment group as shown in Figure 27. Editing levels were similar across the five liver regions (represented by the five dots in each bar) demonstrating that editing was homogenous across the entire liver. Guide 2 resulted in a mean editing efficiency of 50% amongst the three animals. This represents editing in approximately 70% of hepatocytes because hepatocytes make up about 70% of the cells in the liver and the LNP delivers primarily to hepatocytes. Based on our mouse studies, we expect that this level of editing may be sufficient to achieve the required level of donor template DNA integration. Because InDel formation in the albumin safe harbor locus occurs within the non-coding intron these high levels of editing do not result in measurable changes in circulating albumin levels in edited mice.

Figure 27. Efficient Editing in NHPs at the Safe Harbor Locus for the Hemophilia A Program.



* Each bar is an animal and each datapoint represents a different lobe of the liver.

Next Steps

We are finalizing donor DNA cassette optimization and performing our next set of NHP studies to demonstrate and quantify FVIII integration and FVIII protein expression. In parallel, we are manufacturing mRNA, gRNA, AAV and LNP to support future IND-enabling studies. We expect to select a final development candidate in the first half of 2024 and initiate IND-enabling GLP studies thereafter. The progress we have made on this program not only validates the efficiency and specificity of our novel nucleases in rodent and NHP models, but also supports our ongoing efforts with other large gene integration approaches.

Primary Hyperoxaluria, Type 1—a durable knockdown of HAO1 for substrate reduction therapy

The Disease

PH1 is a rare autosomal recessive metabolic disease arising from loss of function mutations in the AGXT gene that encodes alanine glyoxylate aminotransferase. This enzyme is found in peroxisomes of the liver where it catalyzes the conversion of glyoxylate to glycine and pyruvate. Lack of functional AGXT leads to an accumulation of glyoxylate substrate, which is then converted to oxalate and excreted in the kidney. The excess

urinary oxalate forms an insoluble complex with urinary calcium that leads to the production of calcium oxalate crystal precipitates. This pathologic process results in the formation of repeated calcium oxalate urolithiasis and nephrolithiasis, which in turn leads to obstructive uropathy, inflammation, fibrosis, tubular toxicity, and progressive loss of kidney function.

PH1 is a serious disease that causes kidney failure. More than 70% of individuals with PH1 mutations will develop end-stage renal disease, with a median age in young adulthood. Patients with PH1 continue to experience morbidity and mortality even after the development of end-stage renal disease due to progressive systemic calcium oxalate precipitation in various organs (systemic oxalosis). Despite renal replacement therapy or kidney transplantation, patients with PH1 have an overall shorter lifespan than patients with other causes of renal failure, highlighting the progressive and severe nature of this metabolic disease.

PH1 is the most common of the primary hyperoxalurias but is a rare disease with an estimated prevalence of approximately one to three in 1,000,000 individuals. While epidemiologic data on PH1 is limited, these estimates suggest there are approximately 1,000 to 3,000 patients in both the United States and Europe, and possibly up to 20,000 patients globally.

Limitations of Current Approaches

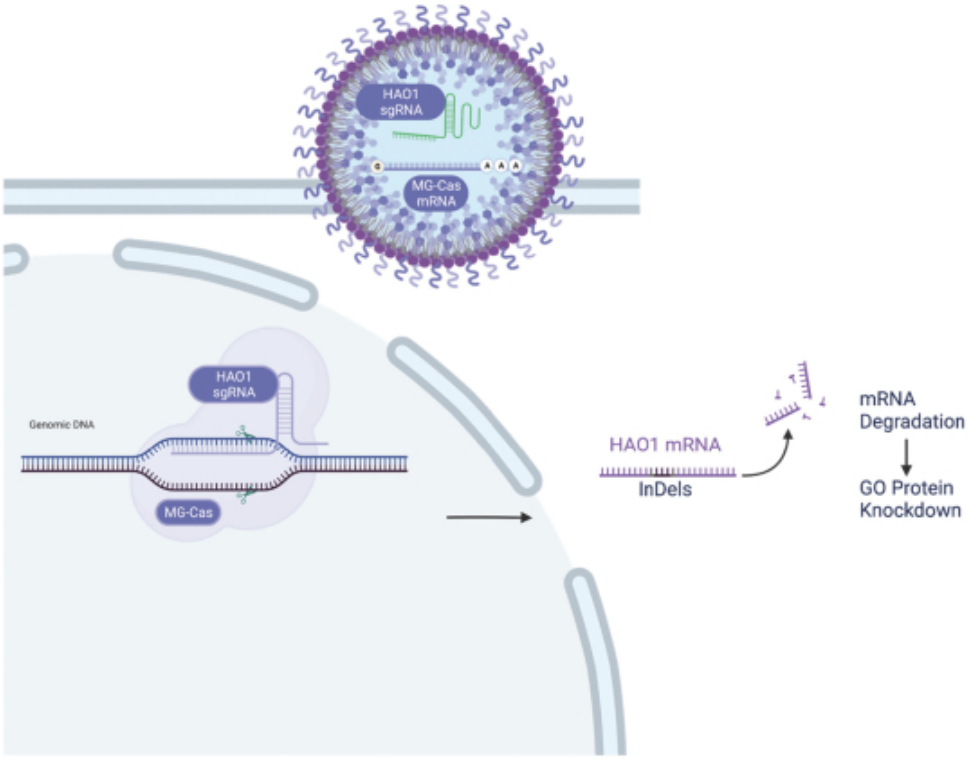
Until recently, the standard of care for treating PH1 was primarily supportive in nature, with hydration and diuretics used to reduce urinary oxalate concentration, pyridoxine (vitamin B6) to enhance residual function of alanine glyoxylate aminotransferase catalytic activity, and hemodialysis once renal function progressed to end stage. Liver transplantation has also been explored as a means of providing patients with a normal copy of AGXT and has been used alone in early-stage patients or as a combined liver-kidney transplant in more advanced patients. Transplantation approaches have limitations due to donor availability, morbidity associated with the surgical procedure, and lifelong immunosuppression required to inhibit graft rejection.

More recently, the standard of care has been updated to include treatment with lumasiran, a siRNA therapeutic approved in adults and children with PH1 that acts to reduce the levels of urinary oxalate. Using a therapeutic approach known as substrate reduction therapy, lumasiran targets mRNA from a separate gene, HAO1, that encodes GO. By inhibiting GO, levels of glyoxylate are reduced, which results in reduced downstream levels of oxalate. As a result, lower urinary oxalate results in decreased urinary calcium oxalate stone formation. It is anticipated that inhibition of renal oxalate accumulation and stone formation can slow or prevent continued loss of renal function. Lumasiran has been generally well tolerated in clinical studies of adults and children with PH1 but it requires repeat subcutaneous administration indefinitely in order to maintain its effect. In addition, injection site reactions are common among patients taking lumasiran and the degree of urinary oxalate reduction has been observed to not reach normal levels in many patients. Thus, there is a potential to improve clinical outcomes for PH1 patients with a one-time administration of a therapy that inhibits urinary oxalate accumulation, prevents calcium oxalate stone formation, and protects renal function.

Our Approach and Results

The goal of our genome editing approach is to durably knock down HAO1 resulting in stable and permanent reduction of oxalate levels to effect a lifelong benefit. We plan to deliver mRNA for one of our lead nucleases and a guide encapsulated within a single LNP as shown in Figure 28 below. We expect the mRNA and HAO1 gRNA will be released in hepatocytes (the cell type in the liver that expresses the HAO1 gene) where the mRNA will be expressed into the nuclease that forms a complex with the guide and create a double stranded break in the HAO1 gene and inhibits gene expression.

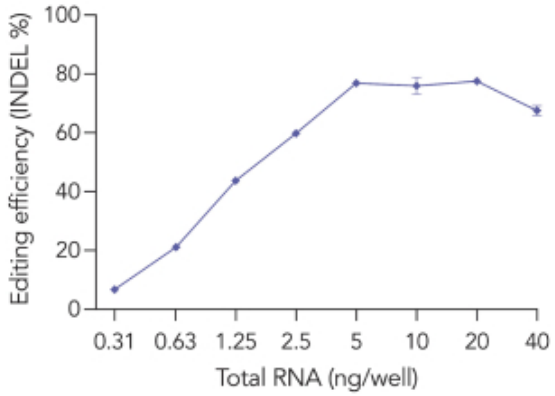
Figure 28. Genome Editing Strategy for Targeting HAO1.



The safety of this durable knock-down of HAO1 is supported by human genetic observations of an individual lacking a functional copy of the HAO1 gene with no evidence of a pathologic phenotype. The safety of this approach is also supported by up to three years of clinical data using a siRNA approach to silence this gene.

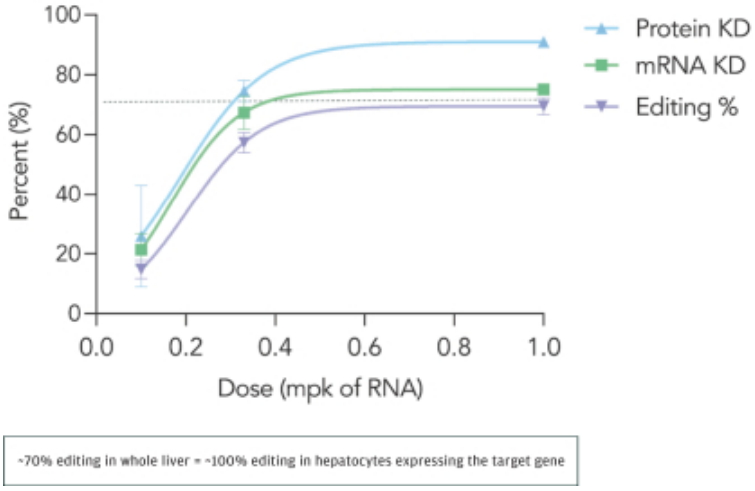
We have performed nuclease and guide screening to select an optimal nuclease and gRNA combination. The double strand break created by the selected nuclease has been observed to be efficiently and rapidly repaired by the cell via a process that introduces small InDels to the sequence at the target site. When these InDels alter the reading frame of the gene (so called “out of frame” InDels) this results in degradation of the HAO1 mRNA. Because different nucleases and guides generate distinct InDel profiles, we included analysis of the InDel profile as a selection criterion during our nuclease /gRNA screen. In addition to the InDel profile, we also screened for the efficiency of HAO1 mRNA reduction and impact on the HAO1 mRNA sequences using whole transcriptome RNA sequencing (“RNAseq”). This screening process resulted in selection of a lead guide that targets an identical sequence in humans and mice which enables the evaluation of the lead human guide in mouse models. The potency of this lead nuclease and guide was tested in PHH *in vitro* as shown in Figure 29, demonstrating dose-dependent editing when delivered by a LNP with tropism to the liver. Preliminary evaluation of off-target editing in primary human hepatocytes using industry standard approaches has shown minimal off-target events. No editing was observed at selected potential off-target sites in PHH that were edited at a dose of nuclease and guide that resulted in maximal on-target editing. Three off-target edits were observed but only at doses more than 20-fold higher than the dose that resulted in maximal on-target editing. In addition, these three off-target sites were edited at low frequency (less than 1% of on-target editing) and were located in non-coding regions of the genome that we believe pose minimal concern. Additional off-target evaluation is planned prior to development candidate nomination.

Figure 29. Editing Dose Response in Primary Human Hepatocytes with the Lead Nuclease mRNA and Guide Targeting HAO1 Delivered in a LNP.



In normal mice we have demonstrated dose dependent saturating levels of hepatocyte genome editing of HAO1 and up to 90% reduction of target GO protein, providing strong preclinical proof-of-concept as shown in Figure 30.

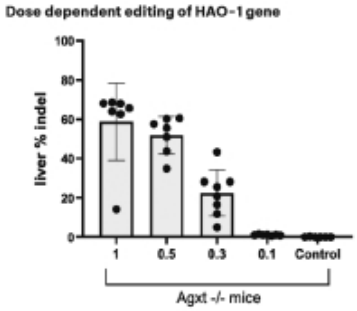
Figure 30. Dose Dependent Editing, mRNA Knockdown and Protein Knockdown of HAO1 in Normal Mice after a Single Administration of the Lead Nuclease mRNA and Lead Guide Encapsulated in a LNP with Tropism to the Liver.



Additionally, along with our partner Moderna, we have achieved preclinical proof-of-concept in an AGXT knock-out mouse which is an accepted disease model of PH1 (Figure 31). AGXT knock-out mice have elevated oxalate in the urine (measured with a mass spec assay) of about 500 mg per gram of creatinine compared to about 190 mg per gram of creatinine in mice of the same strain (BL/6) with a wild type AGXT genotype. Cohorts of male and female mice were given a single administration of the lead nuclease mRNA and gRNA encapsulated in a LNP with tropism to the liver. Dose dependent editing at the target site in HAO1 in the liver was measured at the end of this study (when the mice were sacrificed). As a control a Cas9 mRNA and a potent Cas9 guide targeting HAO1 from a published source were also packaged in the LNP with tropism to the liver and tested at a single dose. The editing of HAO1 had the expected effect of dose dependently reducing urinary oxalate, with the highest dose achieving oxalate levels compared to that of wild type mice.

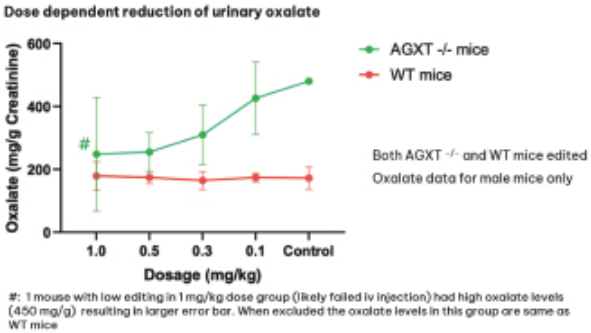
Figure 31. Preclinical Proof of Concept in PH1 Disease Model (AGXT -/- mice).

Figure 31a. Dose dependent editing of the HAO1 gene in AGXT -/- mice.



Source: Moderna

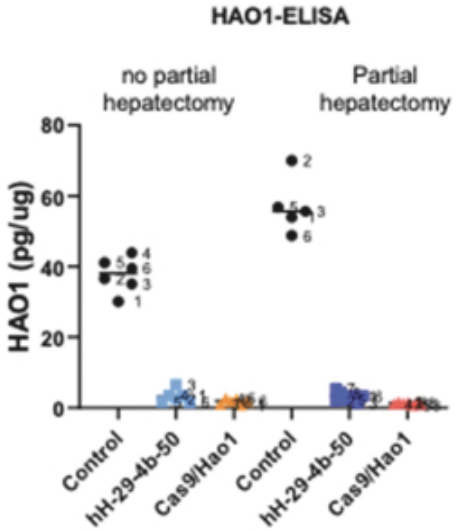
Figure 31b. Dose-dependent reduction in urinary oxalate reaching normalization at highest dose.



Source: Moderna

The durability of this approach was demonstrated by continued knockdown of GO protein even after partial hepatectomy (removal of about two thirds of the liver) and rapid liver re-growth (Figure 32). In this study wild type mice were given a single injection of either buffer or a liver tropic LNP encapsulating the MG nuclease mRNA and the lead gRNA targeting HAO1. Eight days after dosing a liver hepatectomy was performed in which about two thirds of the liver was removed. This stimulates the majority of the remaining liver cells to enter cell division and results in rapid re-growth of the liver that restores the normal liver size within 7 to 10 days. Eight days after partial hepatectomy the levels of GO protein (the product of the HAO1 gene) in the liver were reduced by more than 90%, the same as the level of knockdown in edited mice that did not undergo hepatectomy. This result demonstrates that the knock down of HAO1 expression was not compromised by extensive liver growth and that the fitness of edited hepatocytes was not impacted by editing.

Figure 32. Knockdown of the Protein Encoded by HAO1 after HAO1 Gene Editing was Maintained Following Partial Hepatectomy. Control Mice were Injected with Buffer as a Control.



Source: Moderna

Next Steps

We are in the final stages of confirming the candidate to take into NHP studies and are scheduled to begin NHP studies in 2023 to support final development candidate selection thereafter.

This program is partnered with Moderna for both development and commercialization. The partnership enables us to leverage Moderna's deep expertise in mRNA and LNP technology to ensure efficient delivery of our nuclease to hepatocytes. In turn, we provide the novel programmable nuclease and guide chemistry to support precise targeting of the HAO1 gene. In addition to further validating our therapeutic platform, to the best of our knowledge this program represents the first time a type V nuclease is being developed for a therapeutic *in vivo* genome editing approach.

Transthyretin Amyloidosis—a single treatment to knockdown TTR gene expression

The Disease

Transthyretin amyloidosis is a disease of misfolded and aggregated TTR protein that can deposit in tissues causing organ dysfunction, primarily in the heart and/or peripheral nerves. The TTR protein is normally produced in the liver and circulates in a homotetramer (four copies of the same TTR protein bound together) where it serves as a carrier protein for vitamin A and thyroxine. Certain mutations have been identified that can cause TTR homotetramers to fall apart, misfold, and aggregate into insoluble fibrils that deposit in cardiac tissue and peripheral nerves. However, more commonly, the normal aging process is associated with an increased propensity for TTR misfolding and aggregation in the heart without any known genetic sequence variation. These distinctions lead to TTR amyloidosis being characterized as either ATTRv caused by mutations in TTR, or ATTRwt. It is estimated that globally there are approximately 50,000 patients with ATTRv and between 300,000 and 500,000 patients with ATTRwt. Among the larger ATTRwt patient population, the most common presentation is a rapidly progressive, restrictive, and hypertrophic cardiomyopathy due to progressive deposition of insoluble TTR fibrils, which result in thickening of the myocardium and stiffening of the ventricles. These pathologic processes lead to impaired diastolic function and progressive cardiomyopathy that typically leads to progressive heart failure and often death within three to five years from disease onset. Although cardiac manifestations are more common and severe, patients with neurologic manifestations also experience significant morbidity, loss of functionality, and impaired quality of life.

Limitations of Current Approaches

To date, treatment options for patients with TTR amyloidosis, including those with either cardiomyopathy or polyneuropathy manifestations, consist of efforts to stabilize the TTR tetramer with a small molecule (tafamadis) or knock down TTR levels through antisense oligonucleotides (i.e., inotersen and eplontersen which is currently under regulatory review in the U.S.) or siRNA strategies (i.e., patisiran and vutrisiran).

Tafamadis was studied in a randomized trial of patients with either ATTRv and ATTRwt cardiomyopathy and demonstrated reductions in all-cause mortality and cardiovascular-related hospitalizations and reduced the decline in quality of life and functional capacity over 30 months compared to placebo. Tafamadis is currently approved to treat patients with ATTR cardiomyopathy in the U.S. and patients with ATTRv and ATTR cardiomyopathy in the EU and in other parts of the world. Inotersen has demonstrated benefit in patients with ATTRv and polyneuropathy and is approved in the U.S., EU, and in other parts of the world. Eplontersen has demonstrated benefit in patients with ATTRv and polyneuropathy and is currently under regulatory review in the U.S. Eplontersen is also being studied in a Phase 3 trial for patients with ATTR cardiomyopathy. Patisiran is approved for the treatment of polyneuropathy of ATTRv in adults in the U.S., EU, and other parts of the world. Patisiran is currently under regulatory review for the treatment of patients with ATTR cardiomyopathy based on a randomized study demonstrating improvement in the 6-Minute Walk Test and quality of life over 12 months

compared to placebo. Vutrisiran has demonstrated benefit in patients with ATTRv and polyneuropathy and is approved for use in ATTRv in the U.S., EU, and other parts of the world. Although these approaches have improved clinical outcomes for patients with TTR amyloidosis, the disease is still associated with significant morbidity and mortality and requires lifelong therapy to maintain therapeutic benefit.

Our Approach/Next Steps

More recently, early-stage third-party studies have demonstrated the feasibility of knocking down TTR (wild type or mutated versions) using a CRISPR based genome editing approach in a small number of patients. Clinical validation of this TTR knockdown approach is provided by antisense and siRNA clinical experience and further suggests the potential longer-term safety and tolerability of this approach.

Using our novel nucleases, we aim to provide efficient TTR knockdown and halt further deposition of amyloid fibrils. Previous experience suggests a clinical correlation between the degree of TTR knockdown and potential for benefit in familial forms of the disease, which are expected to translate similarly to wild type forms. The high degree of *in vivo* editing efficiency and specificity of our nuclease platform suggest the potential for a single treatment to knockdown TTR gene expression and remove the requirement for life-long therapy.

Along with our partner Ionis, we are currently in advanced stages of nuclease and guide selection and expect to move into NHP studies in 2024. We believe one of the strengths of our technology platform is applying our multiple nucleases that have distinct non-overlapping PAMs to create a larger number of guides for a given target. Starting with a larger number of guides should increase the chance of finding highly active and specific guides/nuclease combinations. Leveraging multiple nucleases with a diversity of PAMs enabled a high targeting density for the TTR gene as illustrated in Figure 33a. By comparison significantly fewer (3.8-fold fewer) guides are available when using SpCas9 (Figure 33b). We have screened more than 500 guides against the human TTR gene using six of our nucleases. With one additional nuclease in progress we will ultimately have screened 535 guides. Our high throughput screening platform has enabled us to screen approximately 500 guides in a four-month time span.

Figure 33a. High density of gRNA targeting the coding and regulatory regions of the TTR gene enabled by our platform of nucleases with diverse PAMs.

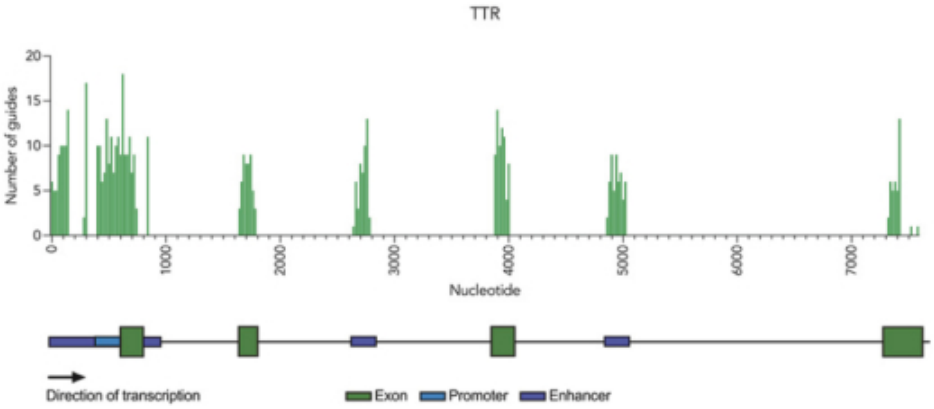
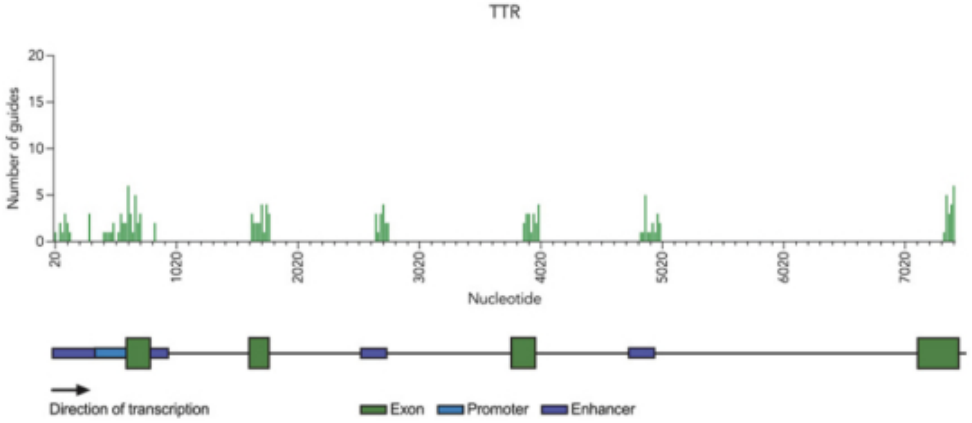


Figure 33b. Density of SpCas9 gRNA targeting the coding and regulatory regions of the TTR gene.



We are in the process of selecting lead guides and nucleases for evaluation in mouse models that carry the human TTR gene. Promising early leads have shown potent TTR mRNA knockdown in primary human hepatocytes. We plan to deliver our programmable nuclease and its associated gRNA to the liver using LNP technology, which has been shown to be highly selective for hepatocytes. This program not only provides a novel nuclease approach to knocking down TTR levels, but also leverages our partner's long-standing clinical development expertise in the TTR amyloidosis field to accelerate our efforts.

Cardiovascular Disease – a gene editing solution to eliminate angiotensinogen gene expression

The Disease

Cardiovascular disease is the leading cause of death worldwide and implicated in the deaths of approximately 17.9 million individuals each year. Although cardiovascular diseases are not genetically defined diseases, there are well validated gene targets and signaling pathways that address potent sources of vasoconstriction allowing for the creation of an important genetic medicine for these common diseases. Among the most important of these signaling pathways that have demonstrated marked clinical benefit in both hypertension and heart failure is the renin-angiotensin-aldosterone system (RAS) pathway, that has been successfully targeted by a number of important medications including renin inhibitors, angiotensin converting enzyme inhibitors, angiotensin receptor blockers, and aldosterone antagonists. Beyond its effect on blood pressure control, inhibitors of the RAS pathway have been shown to provide meaningful clinical benefit in ischemic heart disease and chronic heart failure as well as in diabetic nephropathy, and other forms of chronic renal insufficiency. However, continuous 24-hour inhibition of the RAS pathway with oral agents is not always successful, especially if compliance is suboptimal. Importantly, despite use of RAS inhibitors, diurnal variability in blood pressure and nocturnal blood pressure elevations can still occur. Recent early stage clinical studies using antisense and siRNA approaches to durably suppress the RAS pathway by targeting liver derived angiotensinogen provides important clinical validation of this approach as a means of safely reducing blood pressure without incurring hypotension, hypokalemia, or acute renal injury.

Limitations of Current Therapy

Although there are numerous approved classes of drugs that have demonstrated clinical benefit in patients with cardiovascular disease and refractory hypertension patients, many patients do not reach their blood pressure goals or continue to have cardiovascular disease progression. In addition to contributions from underlying

stiffened arteries and/or increased sympathetic tone, patients may have suboptimal adherence in taking a large number of daily oral pills. Importantly, current treatments often do not fully provide reliable and consistent 24-hour control of blood pressure which can leave patients exposed to diurnal variation and early morning blood pressure surges associated with cardiovascular events. Adverse effects of polypharmacy approaches and complicated food effects or drug-drug interactions can further negatively affect compliance and lead to poor outcomes. Therefore, despite the availability of oral medications, there remains a significant unmet need for a well-tolerated, durable approach to blood pressure control and cardiovascular protection with a clinically validated target.

Our Approach/Next Steps

Our goal is to knockdown the expression of angiotensinogen in the liver using one of our programmable nucleases to generate a durable reduction in blood pressure from a single treatment. Angiotensinogen, encoded by the gene AGT, is at the top of the RAS pathway and the precursor to highly vasoconstrictive peptides angiotensin I and II and is thus an attractive and novel target for reduction of blood pressure. Inhibiting angiotensinogen protein production from the liver has the advantage of minimizing inhibition of the RAS pathway in the kidney which will provide a better safety profile by keeping the small amount of kidney production of AGT intact and thus avoiding renal dysfunction that is common with current medications and ensuring adequate vasoactive homeostasis in stress situations. A second potential advantage of targeting AGT is that it may limit escape mechanisms that restore angiotensin II levels or angiotensin II signaling. Clinical proof of concept for reduction of AGT protein levels comes from ongoing clinical trials of antisense (IONIS-AGT-L_{Rx}) and siRNA (ALN-AGT) drug candidates that have shown reduced mRNA levels of AGT in the liver and consequently reduced levels of AGT protein in the blood. We plan to deliver a programmable nuclease and its associated guide RNA to the liver using LNP technology.

Along with our partner Ionis Pharmaceuticals we are currently in advanced stages of nuclease and guide screening and expect to move into NHP studies in late 2024 or early 2025. We believe one of the strengths of our technology platform is being able to access a larger proportion of the human genome by applying our multiple nucleases that have distinct non-overlapping PAMs. We have the potential to screen up to 1,490 guides using six MG nucleases against the AGT gene. To date we have screened 441 guides against the coding region of AGT and are planning to screen an additional 420 guides against regulatory regions. Leveraging the multiple MG nucleases with a diversity of PAMs enables a high targeting density as illustrated for the seven MG nucleases that are being screened against AGT (Figure 34a). By comparison significantly fewer guides (2.5-fold fewer) are available when using spCas9 (Figure 34b). Multiple guides with potent editing of the AGT gene in human cells were identified in our initial guide screen against the coding sequence. We are in the process of completing the guide screen and selecting lead guides/nucleases for evaluation in mouse models that carry the human AGT gene.

Figure 34a: High density of guide RNA targeting coding and regulatory regions of the AGT gene enabled by our platform of nucleases with diverse PAMs

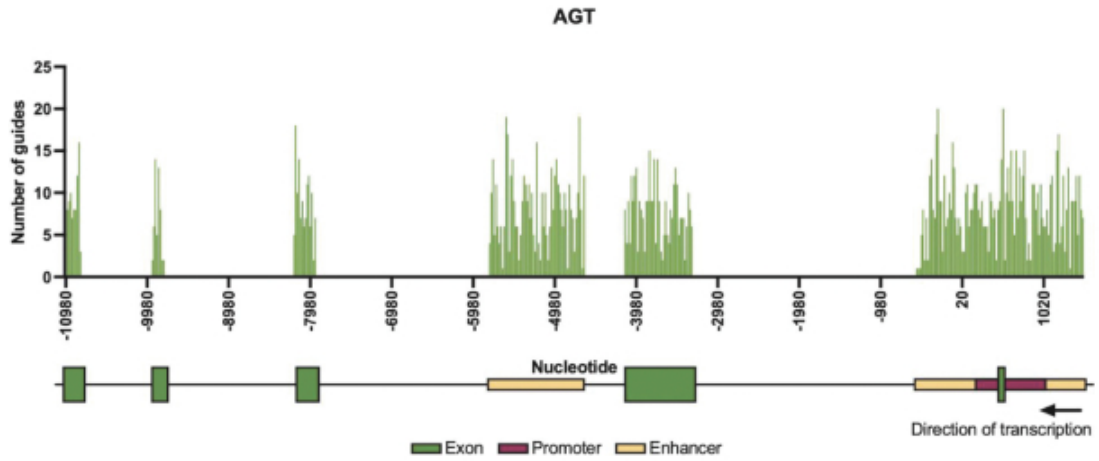
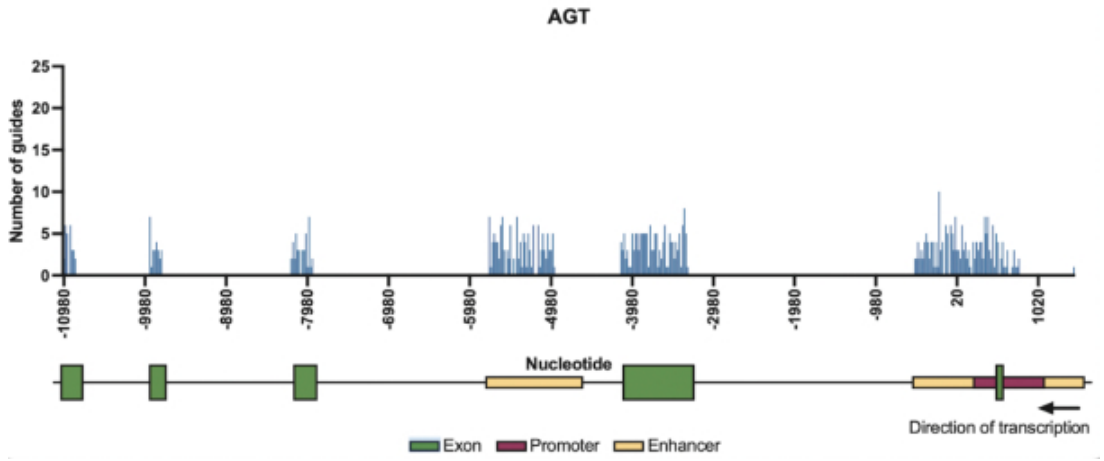


Figure 34b: Density of spCas9 guide RNA targeting the coding and regulatory regions the AGT gene



We believe that this program is expected to be one of the first co-development efforts to develop a gene editing therapy for more common, non-genetically defined cardiovascular indications.

A1AT Deficiency

The Disease

A1AT deficiency is an autosomal recessive disease arising from loss of the normal A1AT protein encoded by the gene SERPINA1. Clinical manifestations of A1AT deficiency are primarily in the lung due to the toxic loss of normal function of A1AT, and occasionally in the liver due to the toxic effects of accumulation of abnormal A1AT.

AIAT is a highly abundant plasma protein that acts as an inhibitor of the potent proteolytic enzyme neutrophil elastase. Neutrophil elastase is involved in the host response to infection, but when unchecked can degrade connective tissue. In the lung, clinical manifestations of A1AT deficiency include emphysema and bronchiectasis

from destruction of normal alveolar connective tissue. In patients with liver disease, the primary pathophysiology is liver inflammation and cirrhosis due to buildup of abnormal A1AT protein. Liver disease is more often found in children with A1AT deficiency, and lung disease is more often found in adults with A1AT.

A1AT deficiency is a clinically underrecognized disease, especially those with pulmonary manifestations as it is often mistaken for other forms of chronic obstructive pulmonary disease. Recent estimates from genetic screening suggest that 80,000 to 100,000 individuals in the United States have severe deficiencies of A1AT and approximately 40,000 to 60,000 have clinically manifest emphysema caused by A1AT deficiency. As not all individuals with A1AT deficiency present similarly, it is believed that environmental factors such as exposure to smoke, allergens, chemicals, and other environmental factors likely impact the severity and clinical manifestations.

Limitations of Current Therapy

Patients with A1AT deficiency are often treated with protein augmentation therapy. The goal of augmentation therapy is to increase circulating levels of A1AT sufficiently to balance the adverse effects of unchecked neutrophil elastase and slow the progression of emphysema. Augmentation therapy consists of an IV infusion of purified pooled donor plasma enriched for A1AT protein levels given weekly. While studies have demonstrated the ability to achieve higher circulating levels of A1AT with augmentation therapy, longer term impacts on protecting lung function are limited. This approach is also costly and not available for many patients. Infusions have also been associated with adverse events including flu-like reactions, fever, and rarely anaphylaxis. In severe cases of lung or liver disease, organ transplantation may be required to preserve life but are associated with post-transplant risks and long-term immunosuppression requirements.

Our Approach/Next Steps

The most frequent mutation responsible for A1AT deficiency is the PiZ mutation that changes the normal amino acid at position 342, which is glutamic acid, to lysine (E342K). Patients that are homozygous for the PiZ allele (called ZZ allele) make up more than 90% of the patients globally. We propose to correct this mutation back to normal using either an adenine base editor or Little RIGS. Because individuals that are heterozygous for the PiZ mutation (so called ZM allele) have minimal pathology, it is expected that editing of 50% of the alleles would be therapeutic. The most common DNA sequence change that creates the E342K mutation is a G to A change at the first position of the codon; GAG (normal) to AAG (PiZ). Converting the PiZ sequence (AAG) to the normal sequence (GAG) requires changing the underlined A to G which can be achieved using an adenine base editor. For this approach to be successful, a potent gRNA needs to be identified that targets the editing window to the ABE at the precise location of the codon for amino acid 342. There are five additional A bases within 5 bp on either side of the target A base in the 342 codon which could be subject to bystander edits (defined as edits at non-target bases within the site targeted by the guide), several of which would change additional aa with unpredictable impacts on the structure and function of the protein. Given the complexity of this edit, we will evaluate multiple genome editing systems, including base editors and RIGS, in order to advance the most effective genome editing approach.

Wilson’s Disease

The Disease

Wilson’s disease is an autosomal recessive disease of copper metabolism resulting from impaired function of the intracellular copper transporter encoded by the gene ATP7B. Mutations in ATP7B lead to impaired biliary excretion of copper, leading to copper accumulation in multiple organs including liver, brain, and eye. Given the large size of the gene and allelic heterogeneity, the disease has been difficult to target with any genetic

medicine to date. While impaired copper excretion begins at birth, the effect is typically not observed clinically until later in childhood or early adulthood and the majority of patients are diagnosed between ages five and 35. The most common manifestation is chronic active hepatitis that can progress to liver cirrhosis; however, a variety of neurologic and psychiatric manifestations may also be present and undiagnosed. Such symptoms may include dysarthria, gait impairment, dystonia, depression, irritability, and personality changes. Diagnosis is typically suggested by abnormalities in blood ceruloplasmin and/or 24-hour urine copper as well as the presence of Kayser-Fleisher rings on ocular examination. Additional diagnostic certainty can come from liver biopsy and ATP7B sequencing.

Wilson's disease has an estimated global prevalence of one patient per 10,000 to 30,000 individuals although recent genotyping studies suggest that the actual genetic prevalence may be substantially higher. This estimate suggests that there are more than 30,000 patients with Wilson's disease in the United States alone.

Limitations of Current Therapy

Wilson's disease is a serious disease that is fatal if left untreated, typically from cirrhosis and liver failure. Once diagnosed, the standard of care for Wilson's disease involves chronic treatments to try and remove copper from the body using copper chelators and efforts to minimize copper absorption from the gastrointestinal tract. Treatment must be lifelong to prevent copper reaccumulation and side effects from chelator therapy (e.g. hypersensitivity reactions, fever, changes to blood counts) are common and can lead to treatment discontinuation. If treatment is discontinued, patients are at risk for hepatic decompensation or the development of new neurologic symptoms. In patients with delayed diagnosis or rapidly progressive disease, liver transplant may be required with associated post-transplant risks and need for immunosuppression.

There are no genetic medicines approved for Wilson's disease. A genetic medicine has the potential to eliminate the need for life-long therapy and copper monitoring as well as reduce the risk for adverse events.

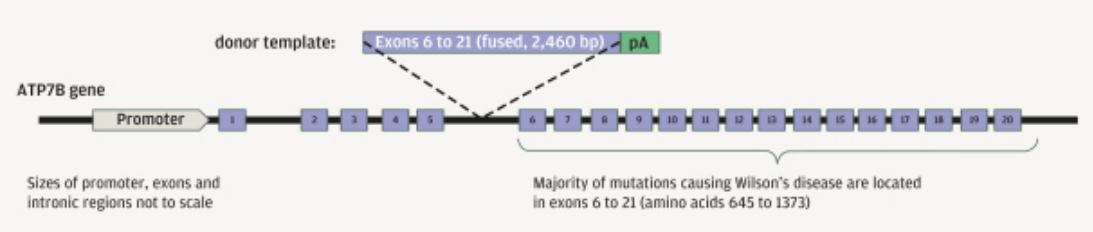
Our Approach/Next Steps

Wilson's disease is inherited in a recessive manner meaning that heterozygotes (people having one mutant allele and one wild type allele) are not affected. This means that correction of only one of the two mutant alleles should be sufficient to confer a normal phenotype on the hepatocyte, the cell type in the liver in which the ATP7B gene performs its function. Patients with Wilson's disease have a diverse spectrum of different mutation types (point mutations, deletions, splice site mutations) that are located throughout the ATP7B gene although different ethnic groups bear different predominant mutations. Common mutations in specific population groups include H1069Q (30-70% of Wilson's disease patients in Germany, 30-70% in US Caucasians), M645R (approximately 30% of Wilson's disease patients in Spain), R778L (40% of Wilson's disease patients in Korea, approximately 30% in China).

We are working to treat Wilson's disease using a Big RIGS insertion, potentially the first known instance of a targeted large gene insertion with this approach. We believe this represents the ideal approach for genome editing for Wilson's disease because we expect that it could enable the majority of patients to be treated with the same therapy irrespective of their specific mutation(s) in ATP7B. The ATP7B gene spans 76,000 bp of DNA in the human genome, and the protein coding sequence of ATP7B is 4,398 bp in length which encodes a protein of 1,465 aa. The majority of the pathogenic mutations identified in ATP7B are located in the C-terminal half of the protein between amino acid positions 645 and 1373 which are encoded in exons 6 to 21 (Figure 35). This region includes the three most frequent mutations (H1069Q, R778L, M645R, I1148T) as well as many other less common mutations. We are evaluating a genome editing approach in which a donor template that encodes exons 6 to 21 of the ATP7B gene (2460 bp) is inserted in to the ATP7B locus at intron 6 (downstream of exon 5) such that exons

1 through 5 of the endogenous gene are functionally fused to the inserted wild type exons 6 to 21. We believe this will generate a wild type ATP7B protein driven from the endogenous ATP7B promoter thereby preserving the normal levels of ATP7B and normal regulation of expression. This approach should be applicable to all Wilson's disease patients except for those with mutations in exons 1 to 5 which represent only a small fraction of the patient population. This approach leverages an all RNA based editing system such that the editing components could theoretically be delivered in a single LNP that is taken up by the hepatocytes of the liver.

Figure 35. Genome Editing Strategy for Wilson's Disease.



Familial Amyotrophic Lateral Sclerosis ("ALS")

The Disease

ALS is a rapidly progressive neurodegenerative disorder of upper and lower motor neurons leading to weakness, disability, and death. The prevalence of ALS is approximately four to six patients per 100,000 individuals and it is estimated that over 5,000 patients are diagnosed each year in the United States. While the majority of ALS cases have no known family history, it is estimated that approximately 10% of cases are due to inherited causes. Of these, among the more prominent causes is from a mutation in the gene superoxide dismutase 1 ("SOD1"). SOD1 ALS (occasionally referred to as ALS1), is an autosomal dominant condition associated with toxic gain of function of SOD1 leading to protein misfolding and intraneuronal cytotoxicity. While the mechanism of action of SOD1 pathophysiology is poorly understood, it is unique in that histopathologically it does not contain typical cytoplasmic inclusions of the nuclear binding protein TDP-43 seen in other spontaneous and familial forms of ALS. The median age of diagnosis of SOD1 ALS is mid-to-late 40s, and similar to other forms of ALS, progressive weakness and loss of voluntary function is rapid with a median survival after diagnosis of approximately three years.

Limitations of Current Therapy

Despite significant investment in research over recent decades, the standard of care for treating all forms of ALS is suboptimal and there remains no cure. There are currently three drugs approved in the United States to treat all forms of ALS (riluzole, sodium phenylbutyrate and taurursodiol, edaravone), and one recent accelerated drug approval for SOD1 ALS (tofersen). To date, only modest benefit in slowing disease progression or improving survival has been observed, and all of these medications require repeat administration or dosing and are associated with adverse effects. In a Phase 3 clinical trial, tofersen, which is an antisense oligonucleotide targeting SOD1 delivered directly to the cerebrospinal fluid and that requires repeated lumbar puncture monthly, did not result in a statistically significant change on clinical measures after 28 weeks of treatment, but did show a nominally statistically significant benefit on a biomarker, neurofilament light chain, and longer term administration was associated with slowing of disease. Clinically significant adverse reactions with tofersen include myositis and/or radiculitis, papilledema and elevated intracranial pressure, and aseptic meningitis, and additionally adverse reactions can occur from repeated lumbar puncture procedures. Thus,

despite this precision medicine approach, there remains significant unmet need for effective therapies that can halt disease progression and improve overall survival from SOD1 ALS.

Our Approach/Next Steps

Our approach is to build upon the data generated by tofersen and use one of our programmable nucleases to durably knock down SOD1 levels with a single administration, thus capturing durable benefit with a clinically validated disease target without requiring the patient burden of repeat intrathecal administrations of an oligonucleotide. We plan to deliver the nuclease and associated guide using an AAV vector with sufficient tropism for lower motor neurons. We are currently initiating guide screening efforts to potently and selectively knock down SOD1 levels and determining the appropriate nuclease/guide system for AAV packaging.

Spontaneous ALS

The Disease and Limitations of Current Therapy

As noted above, ALS is a relentless and ultimately fatal disease of motor neurons with no known cure. Approximately 90% of ALS does not have a known family history or clear genetic cause. While the underlying cause of ALS in most cases is unknown, a common histopathologic finding involves misfolded cytoplasmic protein aggregates that include TDP-43. As TDP-43 is a highly conserved nuclear RNA and DNA binding protein involved in RNA processing, the clinical manifestations of ALS may arise both from the toxic cytoplasmic TDP-43 aggregates as well as RNA processing abnormalities from the loss of normal nuclear functions of TDP-43. The initial symptom of ALS is a gradual onset of muscle weakness that is typically painless. These symptoms are often followed by muscle twitching, loss of coordination, falls, and fatigue that impair functionality. As the disease progresses, loss of ambulation, spasticity, and diaphragmatic weakness progresses with the most common cause of death being respiratory failure. Despite the approval of several classes of oral compounds for spontaneous ALS, effects on preserving clinical functionality and survival are modest. There remains significant unmet need for safe and effective therapies that can halt disease progression and improve overall survival from spontaneous ALS.

Our Approach/Next Steps

TDP-43 intracytoplasmic inclusions and proteinopathy are hallmarks of the vast majority of ALS histopathology; however, targeting TDP-43 directly has not been feasible due to its critical role in RNA processing and other cellular functions. We intend to develop an ALS therapy that targets the ATXN2 gene, which we believe is an attractive target based on strong third-party preclinical data targeting the gene ATXN2, which encodes the protein Ataxin 2, and has been shown to be a powerful genetic modifier of TDP-43 in yeast and flies, and importantly, knockdown of Ataxin 2, either by antisense oligonucleotides or by genetic manipulation has improved survival and motor function in a mouse model of ALS. A Phase 1/2 clinical trial of an investigational antisense oligonucleotide targeting Ataxin 2 in adults with ALS that is administered intrathecally is in progress, which will provide further information about the safety and efficacy of this approach.

Our plan is to deliver a nuclease and associated guide using an AAV vector with sufficient tropism for lower motor neurons. We are currently initiating guide screening efforts to potently and selectively knock down Ataxin 2 levels and determining the appropriate nuclease/guide system for AAV packaging.

Charcot-Marie-Tooth Type 1a (“CMT1a”)

The Disease

CMT1a is part of a larger classification of hereditary peripheral motor and sensory neuropathies caused by pathogenic mutations in proteins associated with myelin formation and axonal signal propagation. CMT1a is an

autosomal dominant disease arising from a gene duplication of PMP22 (peripheral myelin protein-22) and overexpression of PMP22 protein. PMP22 is tightly regulated and expressed in Schwann cells that control the production of myelin sheaths around axons. Patients with CMT1a have altered myelination that impairs nerve conduction and neuromuscular function. Patients typically present in the first or second decade of life with lower extremity weakness, atrophy, falls, and sensory deficits. The disease is slowly progressive and impairs mobility, and can also involve changes to distal upper extremities and limb deformities. Although life expectancy is typically preserved, CMT1a leads to significant disability and impaired quality of life.

Although exact prevalence estimates vary, CMT is believed to affect one patient per 2,500 individuals, with approximately 126,000 patients in the United States alone. Of those approximately half are believed to have CMT1a, the most common form of the disease.

Limitations of Current Therapy

The treatment of CMT1a and other forms of CMT are largely supportive and there are no approved treatments. Existing standard of care involves physical therapy, stretching, orthotics, and occasional foot surgery to improve deformities that impair ambulation. Patients should be screened for conditions that can exacerbate neuropathies such as vitamin deficiencies or diabetes in an attempt to mitigate against more rapid progression. There are investigational efforts for RNA targeted therapeutics to reduce PMP22 overexpression with strong preclinical data to support the approach, but clinical studies are very early and therapies would need to be given lifelong.

Our Approach/Next Steps

Our approach to CMT1A is a permanent reduction of PMP22 protein levels to the normal range by knockdown of PMP22 expression using our nuclease platform. There is preclinical proof-of-concept for this approach in a mouse model of CMT1A using AAV9 to express a siRNA against PMP22. We intend to use our novel nucleases to introduce InDels in the promoter region of PMP22 that lead to a reproducible reduction of PMP22 expression to the normal range. We anticipate that this editing approach will be delivered via an AAV with the goal of achieving uniformly high levels of genome editing while minimizing the risk of toxicity resulting from reducing PMP22 levels to below normal at a cellular level.

We believe the diversity of our nuclease platforms including type V systems such as MG29-1 that create larger deletions and are more likely to inactivate promoters by eliminating transcription factor binding sites, lends itself to identification of nuclease guide combinations that are efficient and result in partial reduction in the expression of the PMP22 gene. We plan to perform a guide screen targeting the promoter region first in HEK293 cells (a cell line that expresses PMP22 mRNA) and active guides with promising InDel profiles and editing potency will be further evaluated for PMP22 mRNA knockdown. Lead systems will be vectorized into AAV9 viruses and evaluated in the CMT1a mouse model. Once reduction of PMP22 expression is confirmed, the therapeutic benefit can be evaluated via various endpoints including tissue morphology, nerve conduction velocity, circulating biomarkers and behavioral tests to support candidate selection.

Duchenne Muscular Dystrophy (“DMD”)

The Disease

DMD is an X-linked recessive myopathic disease involving loss of function mutations of dystrophin, a large protein critical for the stabilization and protection of muscle fibers encoded by the DMD gene. In the setting of absent or abnormal dystrophin, muscle fibers are prone to injury, degeneration, fibrosis, and ultimately fatty infiltration and replacement. DMD typically presents in early childhood with initial symptoms of muscle

weakness and progresses rapidly to loss of ambulation as well as respiratory muscle fatigue and cardiomyopathy. In general, large proximal muscles are affected earlier than smaller distal muscles, and lower extremity muscles are affected earlier than upper extremity muscles. Patients are often wheelchair bound before teen years and often die in their late teens and early twenties from cardiopulmonary complications. Prior to clinically overt findings, patients typically have marked elevations in the muscle enzyme creatine kinase that can serve as the earliest indicator of muscle inflammation and degeneration. DMD is estimated to occur in one of every 3,500 live births, and as an x linked recessive disease is observed almost entirely in males.

DMD is the largest gene identified in humans to date spanning approximately 2.3 Mbp, and the severity of clinical manifestations of the muscular dystrophy is in part related to the location and type of dystrophin mutation and resulting residual amount of dystrophin present. Accordingly, in-frame mutations with residual dystrophin of 5-50% are associated with a less severe clinical course than early truncating mutations with residual dystrophin levels of 0-5%. These findings have led to drug development efforts to restore out of frame mutations into in-frame mutations that result in an abnormal but partially effective dystrophin protein. Additionally, it has been observed that in-frame deletions of large portions of the central part of the dystrophin protein coding region are well tolerated, which has provided the basis for gene transfer approaches of a “microdystrophin” protein.

Limitations of Current Approaches

Despite significant efforts to develop precision medicines for DMD, results to date have not led to meaningful improvements in the standard of care for patients. The mainstay of treatment for DMD is glucocorticoids to address muscle inflammation and improve proximal muscle strength and respiratory function. However, the benefits of glucocorticoids have to be weighed against their long-term risks that include excessive weight gain, impact on growth, cataract formation, bone loss/fracture risk, and behavioral changes. More recently several genetic therapies that induce exon skipping have been approved in the United States to address specific mutations (e.g., exon 45 (casimersen), exon 51 (etiplirsen), exon 53 (golodirsen)) or induce readthrough of stop mutations (ataluren). These therapies have shown modest improvement in muscle dystrophin levels but their overall impact on clinical outcomes has not been established.

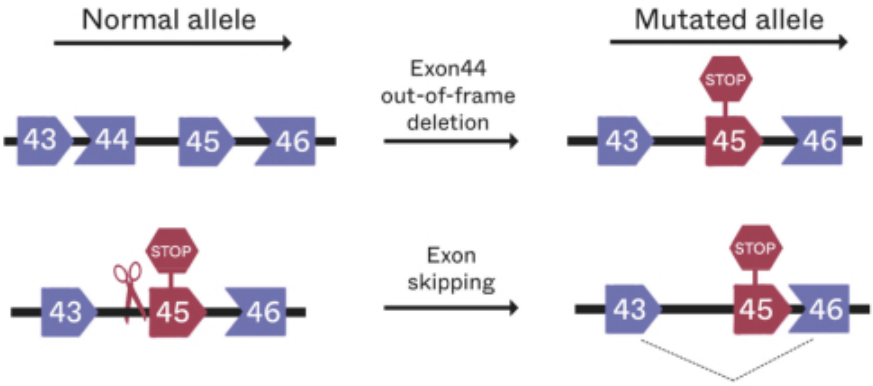
Our Approach/Next Steps

DMD patients often have deletions of entire exons (frequently in the hotspot region of exons 45-55) which results in the flanking exons being spliced out of frame at the mRNA level. Approved therapies have aimed to correct these mutations by restoring the open reading frame through “exon skipping”, thus avoiding degradation of the mRNA and/or premature protein termination.

Our proposed genome editing approach is to more effectively facilitate exon skipping by making permanent changes at the DNA level using genome editing that inactivate the splice acceptor (5’ exon splice junction sequence) of the exon that follows the deleted exon such that after transcription the RNA splicing machinery “skips” over that exon, splices to the following exon, and restores the proper reading frame. The resulting proteins will lack the domains encoded by the mutated and skipped exons but these are known to function nearly as well as normal dystrophin.

For example, one common mutation is deletion of exon 44, which results in exon 43 being aberrantly spliced to exon 45 and an out of frame mRNA (designated as “STOP” in Figure 36) which is then degraded or translated into a truncated protein. As shown in the Figure 36 below, skipping of exon 45 results in splicing from exon 43 to 46 and restores protein expression.

Figure 36. Example of Exon Skipping Approach for Dystrophin Exon 45 that Results in Splicing of Exon 43 to 46 Thereby Restoring the Correct Translational Reading Frame and Thus Dystrophin Function.



We believe a similar strategy can be employed for deletions of exons 50, 51, and 53, creating a franchise of development programs for DMD. We are in the process of initiating a guide screen using our toolbox of DSB nucleases and base editors that are small enough to package in a single AAV vector to inactivate the splice acceptors of the various exons within this hotspot region. The splice acceptor sequence is short (composed of a poly-pyrimidine tract of about 10 to 15 bases followed a short distance away by the three base consensus sequence C/T-A-G) which limits the number of guides that can be designed to inactivate the splice acceptor when using a single nuclease. We are leveraging our collection of small nucleases that have a variety of different PAMs to enable more guides to be designed against each splice acceptor. Hits from this guide screen will be assayed in cardiac and/or skeletal muscle cells *in vitro*. The nuclease/guide combinations that show potent activity in muscle cells will then be evaluated in human cells in which the DMD gene contains the relevant pathogenic mutations to evaluate exon skipping activity. *In vivo* evaluation of leads will be performed in mouse models of DMD.

Because DMD affects skeletal and cardiac muscles throughout the body of DMD patients, effective therapy will require delivery to a large proportion of these muscles with the diaphragm and heart muscle being of particular importance. To date the only delivery system that is able to deliver to these tissues is AAV, with AAV serotype 9 showing the most promising delivery profile. Because a maximum of up to 5 kb of DNA can be packaged inside the AAV virus it is not possible to deliver SpCas9 and a guide or current SpCas9 derived base editors and a guide in a single AAV. While these larger systems can be split between two AAVs, this reduces potency due to the dose limiting toxicity of AAV and the need to administer two viruses (effectively doubling the dose). A dual AAV approach also increases manufacturing complexity and costs. We are leveraging our collection of smaller editing systems that can be packaged in a single AAV (currently three nucleases).

The potential therapeutic benefit of editing the DMD gene in mouse models will be assayed at the mRNA and protein level, and by functional endpoints such as maximum force output.

Cystic fibrosis

Cystic fibrosis is an autosomal recessive lung disease caused by mutations in the CFTR gene. Mutations impact electrolyte transport in cells that produce mucus, sweat, and digestive fluids causing these secretions to be thicker and more viscous than normal. As a result, these secretions become sticky and can clog passageways and ducts, particularly in the lung and pancreas. Over time, these thick mucus secretions in the lung cause

chronic lung infections, inflammation, fibrosis and ultimately destructive bronchoalveolar lung disease resulting in progressive pulmonary failure. The pancreas is similarly affected and blockage of ducts in the pancreas lead to loss of exocrine function and pancreatic insufficiency.

The overall incidence of cystic fibrosis is estimated at one patient in 3,000 to 6,000 live births in the US and Europe, but rates depend strongly on geographic location and ethnicity with higher rates in Caucasians of northern European descent and much lower rates in Asians. It is estimated that there are approximately 30,000 individuals living with cystic fibrosis in the US and 70,000 individuals worldwide. Over the past few decades, improvements in antibiotic treatments, supportive measures, multidisciplinary care centers, and newer targeted medications have increased the overall life expectancy from late childhood to the fourth decade.

Limitations in Current Approaches

One of the challenges in developing precision medicines for cystic fibrosis is the large nature of the gene and the varied mutations along the gene that result in loss of protein expression, loss of function, misfolding and mislocalization within the cell. Accordingly, therapeutic efforts have required individualized approaches tailored to certain mutations to improve CFTR function. Although such medications have improved rates of lung function decline, not all patients have mutations amenable to CFTR targeted therapies. Further, none of these therapies offer a true cure to the underlying gene mutation, and patients continue to experience morbidity and mortality from cystic fibrosis disease progression.

Our Approach/Next Steps

Our goal for a genome editing based treatment for cystic fibrosis is two-fold: (1) a permanent curative therapy from a single treatment, and (2) a therapy that is applicable to the majority of cystic fibrosis patients. We believe this could be achieved by integrating a functional version of the CFTR gene into the genome of the lung basal stem cells (alternatively called bronchioalveolar stem cells). The basal stem cells are believed to give rise to the lung epithelial cells that are the site of CFTR expression that is defective in cystic fibrosis patients. Stem cells are a specialized population of cells that are maintained for a person's lifetime and are the source for renewal of differentiated cells. Editing the stem cells should ensure that the introduced functional CFTR gene is not lost over time due to the shedding of differentiated epithelial cells. By integrating a functional CFTR gene rather than correcting individual cystic fibrosis causing mutations, a single therapy could treat the majority of cystic fibrosis patients.

We intend to explore two of our genome editing modalities in cystic fibrosis. The Big RIGS technology and CAST systems both have the potential to integrate large pieces of DNA (in this case encoding a CFTR gene) into a specific site in the genome. For the Big RIGS approach, the CFTR gene would be delivered as an RNA that is reverse transcribed into DNA to provide the DNA template for integration. In the case of CAST, the CFTR gene would be delivered as double stranded DNA that is recognized by the CAST system and integrated at the desired site by the transposase. Delivery to the basal stem cells of the lungs can theoretically be achieved by IV dosing. We may also evaluate a non-viral delivery system for lung delivery.

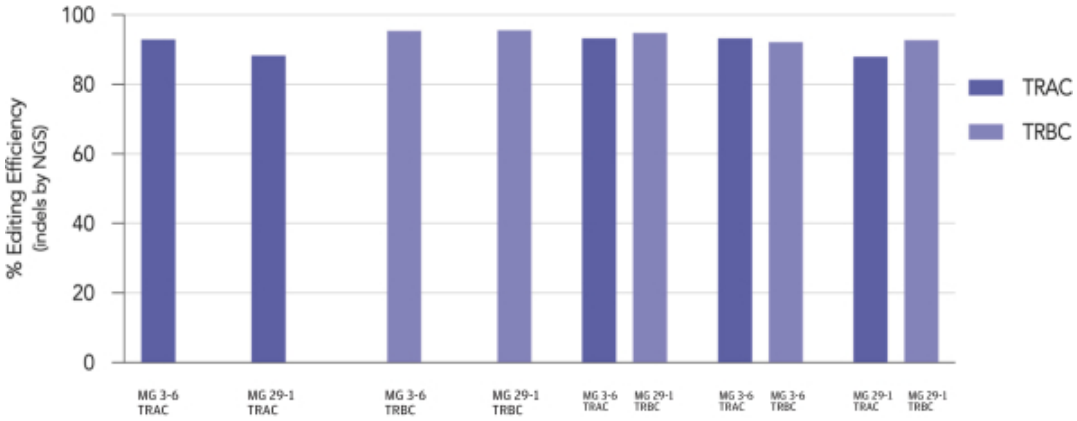
We believe the Big RIGS system has the advantage that it can be delivered using only RNA for which non-viral RNA delivery technologies such as LNP are well established. In contrast, delivery of DNA (that would be required for CAST) by non-viral delivery vectors is not well established with the main barrier being transit of the DNA into the nucleus. However, in a preliminary study we have recently demonstrated delivery of a 4.6 kb double stranded DNA to the nuclei of cells in the liver of mice by IV administered LNP.

Cell Therapy Applications Using Our Platform

Identifying and optimizing novel nucleases from our metagenomics platform has involved a series of stringent efficiency, activity, and specificity testing in a variety of immune cell types which yields a comprehensive dataset that demonstrates our genome editing capabilities for cell therapy applications. Many cell therapies require multiple simultaneous genome edits to enhance efficacy, safety, and/or durability of these products. In the allogeneic cell therapy setting, additional gene edits are required to decrease the immunogenicity of the cell therapies to prevent rejection by the host immune system. Our toolbox provides an important advantage compared to the current cell therapy landscape as we are able to use either single or multiple genome editing enzymes to implement multiple gene edits ("multiplex editing") with high efficiency and specificity. These gene edits could be either knock outs or knock ins.

We are currently working on various discovery stage projects in-house and with collaborators to evaluate the efficacy and specificity of our enzymes for the engineering CAR-T and TCR-T cell product candidates. Figure 37 shows an example of highly efficient multiplex editing demonstrated with two of our lead nucleases, where multiplex editing in T cells resulted in high editing efficiency for double knock-out of alpha and beta T-cell receptor ("TCR"). In the context of our collaboration with Affini-T, knock-out of both TCR chains enabled TCR-based T cell therapy by preventing endogenous and exogenous TCR mispairing. TCR mispairing can reduce the expression of therapeutic TCRs and may also result in the creation of unintentional chimeric TCRs with undesirable activities. Thus, we believe knock-out of both the endogenous alpha and beta chains in alpha beta T cells is critical for creating safe and effective T cell therapies engineered with exogenous TCRs. We believe the successful multiplexing of our nucleases for TCR T cell development suggests that these systems will have the potential to be utilized for editing across additional *ex vivo* cell therapy applications.

Figure 37. Exemplary Type II MG3-6 and Type V MG29-1 Nucleases Exhibited Highly Efficient Multiplexed Genome Editing in Primary Human T-Cells.



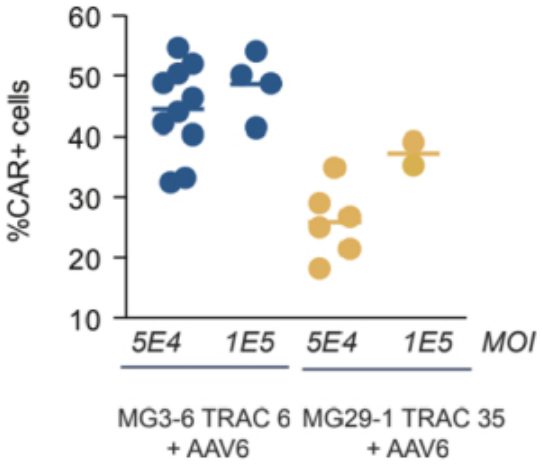
* T cell genome editing, applicable to our partnership with Affini-T. Individually formulated RNPs were delivered to T cells and genome editing assayed by DNA sequencing of TRAC-, TRBC1-, and TRBC2-specific amplicons. For TRBC, the average of the editing in TRBC1 and TRBC2 is reported.

Our initial lead nucleases can be used to efficiently engineer primary human T cells, demonstrating utility for cell therapy applications.

Our programmable nucleases have achieved key requirements for T cell engineering, including genome editing dsDNA-break induced knock-in of a chimeric antigen receptor (CAR, Figure 38).

Figure 38. Example of Two Lead Nucleases, Type II MG3-6 and Type V MG29-1, Capable of Engineering Primary Human T Cells.

Figure 38a. MG3-6 and MG29-1 enabled efficient CAR knock-in in human T cells.

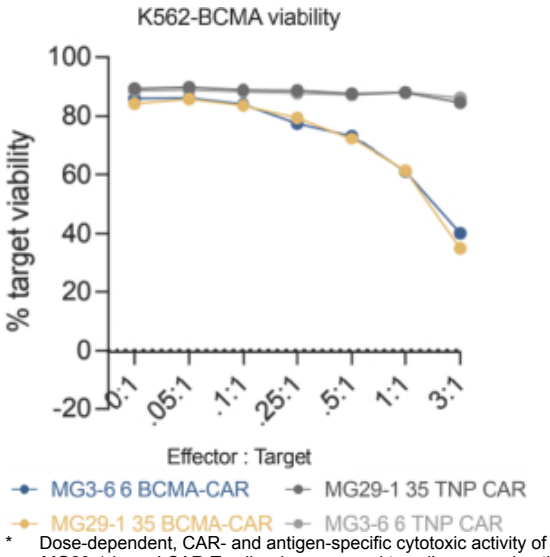


* Nucleases were delivered as RNP and CAR donor template by AAV.

* Nucleases were programmed to target the TRAC locus.

* CAR integration into T cells from 10 T cell donors with MG3-6 and MG29-1 and either 5E4 or 1E5 MOI.

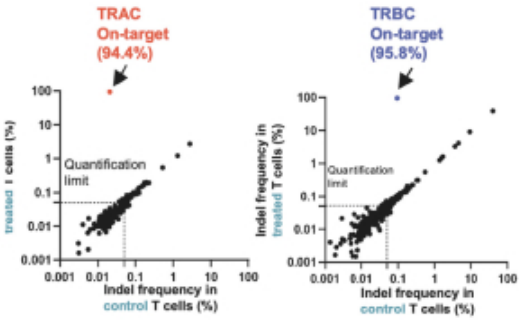
Figure 38b. Engineered T cells exhibited CAR-specific cytotoxicity.



* Dose-dependent, CAR- and antigen-specific cytotoxic activity of MG3-6- and MG29-1-based CAR-T cells when exposed to cells expressing the CAR target antigen BCMA. Data from the MG3-6 anti-BCMA CAR are given in blue, from the MG29-1 anti-BCMA CAR are given in yellow, and an anti-TNP CAR integrated with MG3-6 or MG29-1 in gray; cytotoxic response to parental line is shown in the bottom panel.

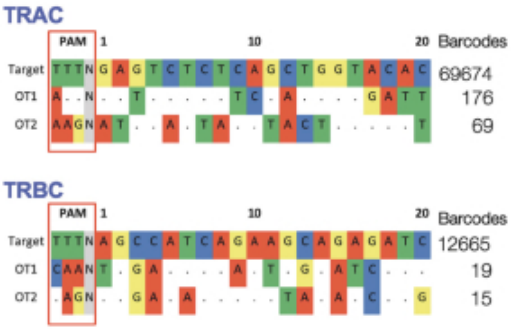
Our MG29-1 nuclease is a highly active and specific nuclease being used for *ex vivo* T cell engineering in collaboration with Affini-T Therapeutics. Affini-T Therapeutics is developing a cell therapy based on engineering the TCR of T cells to recognize mutant KRAS for the treatment of patients with solid tumors. Figure 39 shows that Affini-T scientists were able to demonstrate that our exemplary type V MG29-1 nuclease can be used to knock-out both alpha and beta TCRs in primary T cells, without any verifiable off-targets. Furthermore, Affini-T scientists showed that the double knock-out improved expression of a transgenic TCR, and that MG29-1 can be used to engineer functional TCR T cells by knock-in of a transgene into the TRAC locus (data not shown).

Figure 39a. MG29-1 tested in primary human CD4/CD8 T cells showed specificity in two loci.



* InDel formation was evaluated for 590 computationally predicted off-targets across TRAC and TRBC, allowing for up to six mismatches.

Figure 39b. Oligonucleotide capture in primary T cells identified putative MG29-1 off-targets. More sensitive methods did not verify such results.



* Off-targets had 100-fold fewer barcodes compared with target sites.

* Off-target sites could not be validated with amplicon-based NGS sequencing.

* The presence of >9 mismatches in the off-target sites may indicate that they are not likely to be true positives.

Data generated by Affini-T Therapeutics.

We plan to use our gene editing enzymes to engineer different T cell subsets with either chimeric antigen receptors (CARs) or engineered TCRs targeting antigens expressed in various tumor indications, including hematological and solid tumor malignancies. We are currently investigating different tumor targets and tumor indications to select future T cell therapy product candidates. In addition, we plan to use CAR-T cells in auto-immune diseases driven by the production of autoantibodies, including conditions such as systemic lupus erythematosus, rheumatoid arthritis, myasthenia gravis, autoimmune hemolytic anemia, immune-mediated thrombotic thrombocytopenic purpura, and possibly others. We will use T cells engineered with chimeric antigen receptors against B cell markers to deplete the B cell compartment and eliminate the production of autoantibodies.

Our License and Collaboration Agreements

Moderna Strategic Collaboration and License Agreement

On October 29, 2021, the effective date, we entered into a Strategic Collaboration and License Agreement (the "Moderna Agreement") with Moderna. We will collaborate with Moderna on the research and development of *in vivo* genome editing therapies directed at certain targets and the commercialization of such genome editing therapies. The collaboration provides Moderna with exclusive access to our technology platform during the research period in (1) the field of *in vivo* gene editing technology for a therapeutic, ameliorative or prophylactic application by way of knock-out through InDel formation or base editing or insertion of an exogenous DNA template (such field, "DT Field") and (2) the field of *in vivo* gene editing technology for a therapeutic, ameliorative or prophylactic application outside the use of (a) DNA donor templates and (b) no exogenous template at all but including (c) correction by base editing (such field, "RT Field"). We formed a joint steering committee, a joint research subcommittee and a joint patent subcommittee to oversee the collaboration activities. Each of us and Moderna must use commercially reasonable efforts to perform and complete our respective activities under research plans and commercialization plans approved by the joint steering committee.

Under the terms of the Moderna Agreement, we and Moderna will collaborate on one or more programs in the RT Field (the "Moderna RT program") and two programs in the DT Field (the "Moderna DT program" and the "DT Co-Co program"). We and Moderna have each granted the other party a non-exclusive license in such party's (i) background technology, including intellectual property rights controlled by each party related to each respective program, and (ii) the know-how and patents that come into control of each party relating to the program and during the respective program term, in each case to carry out activities in the applicable research programs. We shall own certain intellectual property that relates to our technology platform ("Metagenomi Program Technology"). Moderna shall own certain intellectual property that relates to Moderna's technology platform ("Moderna Program Technology"). Any intellectual property discovered, invented, conceived or created during an applicable research term that is not Metagenomi Program Technology or Moderna Program Technology shall be jointly owned by us and Moderna. Further, we granted Moderna a perpetual, irrevocable, royalty-free, nonexclusive license under Metagenomi Program Technology to the extent pertaining to the exploitation of donor templates or guides to which Moderna has any inventive contribution.

With respect to the Moderna RT and Moderna DT programs, we will collaborate on the research and development of product candidates under the approved research plans. The initial research term of the Moderna RT program is four years, which may be extended by Moderna for an additional three years upon written notice and a payment of extension fees. The initial research term of the Moderna DT program is four years. We granted to Moderna an option to obtain an exclusive license to develop, manufacture and commercialize up to ten Moderna RT program candidates and up to two Moderna DT program candidates at any time during the research term and prior to filing of an investigational new drug ("IND") application with the Food and Drug Administration ("FDA") or any similar application filed with a regulatory authority in a country other than the United States ("U.S."), subject to Moderna's payment of an option exercise fee of $10.0 million per target. If we or any of our affiliates wish to grant any third party rights in certain targets in the DT Program prior to the earlier of the (a) second anniversary of the agreement or (b) 90 days after achievement of certain readiness standards, we shall provide Moderna with written notice thereof and Moderna shall have a right of first negotiation to negotiate an agreement on the terms of a collaboration and license agreement for such targets.

With respect to the DT Co-Co program, we will work together with Moderna on the co-development and commercialization of products and share costs and profits equally. We granted Moderna a co-exclusive (with us and our affiliates) license under our patents and know-how related to PH1, the DT Co-Co target, to exploit all applications

of such target in the DT Co-Co program. We maintain commercialization rights in the U.S. (subject to Moderna's right to appoint up to 50% of the U.S. sales force for the DT Co-Co program), while Moderna maintains these rights in countries other than the U.S. The initial research term for the DT Co-Co program is four years, and each party has a right to opt-out of the DT Co-Co program at any time, at which point the other party has the right to solely continue the development and commercialization activities, provided that the party which has opted-out shall have a right of first offer in the event that the other party wishes to grant a license or sublicense to a third party with respect to the DT Co-Co program. If there is no development candidate nomination by the end of the initial research term, the DT Co-Co program will expire, unless we have mutually agreed to continue the program.

During the year ended December 31, 2021, we received a non-refundable upfront payment of $40.0 million and a $5.0 million payment for the first year of research costs. Concurrent with the Moderna Collaboration Agreement, Moderna also provided $30.0 million in cash in the form of a convertible promissory note (see Note 9 in our audited consolidated financial statements included elsewhere in this prospectus) pursuant to a convertible promissory note agreement dated October 29, 2021 (the "Moderna Convertible Promissory Note Agreement"). The convertible promissory note was converted into shares of Series B redeemable convertible preferred units in January 2022. Moderna will reimburse us up to $5.0 million in annual research and development costs related to the Moderna DT and Moderna RT programs, or up to the agreed amount of expenses per the budget. As of June 30, 2023, we have received a total of $49.6 million under the Moderna Collaboration Agreement, not including cost-sharing payments under the DT Co-Co program.

For the Moderna RT and Moderna DT programs, we are eligible to receive (i) technology milestone fees related to the achievement of certain preclinical research objectives of up to $75.0 million, (ii) development and regulatory milestones of up to $100.0 million per target, (iii) sales milestones of up to $200.0 million per target, and (iv) royalties ranging from a mid-single digit to a low-teens percentage of annual net sales of a licensed product. Any profits and losses from the co-development and commercialization of the DT Co-Co program are shared equally between us and Moderna. With respect to the DT Co-Co program for which the opt-out party has exercised its opt-out right, the continuing party will pay to the opt-out party, certain development, regulatory and sales milestone payments that will not exceed an aggregate $239.0 million per DT Co-Co target, and opt-out royalties ranging from a high-single digit to a low-teens percentage of annual net sales of a licensed product.

The term of the Moderna Agreement will continue on a licensed product-by-licensed product and country-by-country basis, until the expiration of the applicable royalty term. The royalty term commences on the first commercial sale of a licensed product and terminates on the latest of: (a) the expiration or abandonment of the last valid claim of a patent within the licensed Moderna DT or RT technology; (b) 10 years after the first commercial sale of a licensed product; and (c) expiration of the regulatory exclusivity. Upon the expiration of the term of a licensed product in the Moderna DT or Moderna RT program, the licenses granted to Moderna will survive and become perpetual, fully paid and royalty-free. Each party may terminate the Moderna Agreement on a program-by-program basis upon written notice to the other party for an uncured material breach or insolvency. In lieu of termination for our material breach, Moderna may, upon written notice, continue the agreement with respect to the relevant collaboration target at Moderna's amounts payable reduced by 50%, or in the case of a DT Co-Co-Target, Moderna may propose, subject to arbitration, to adjust the profit and loss share for DT Co-Co Products to provide Moderna with an additional share of the net profits (not to exceed 75% of the total net profits). We may terminate the Moderna Agreement upon written notice to Moderna for a patent challenge. Additionally, Moderna may terminate the agreement at its convenience with respect to Moderna DT or Moderna RT programs for any reason upon at least: (a) 60 days' prior written notice if a first commercial sale has not occurred for the products in such program, or (b) 180 days' prior written notice if a first commercial sale of a product in such program has occurred. Upon termination, all licenses granted under the agreement with respect to the applicable products under the agreement shall terminate, subject to an orderly wind-down period, provided that any permitted sublicense granted to a third party shall survive (provided such third party did not cause the termination through uncured material breach).

Affini-T Development, Option and License Agreement

On June 14, 2022, the effective date, we entered into a Development, Option and License Agreement (the "Affini-T Agreement") with Affini-T. Pursuant to the Affini-T Agreement, we and Affini-T have agreed to identify, develop or optimize certain reagents using our proprietary technology for Affini-T to use such reagents to develop and commercialize gene edited TCR-based therapeutic products exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with any engineered primary TCR alpha/beta T cells and non-exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with certain other engineered immune cells worldwide. A joint steering committee was established by both parties to assign alliance managers and project leaders to oversee the collaboration activities. We must use commercially reasonable efforts to perform and complete our obligations under research plans approved by the joint steering committee.

Pursuant to the Affini-T Agreement, we granted Affini-T options to receive, on a pre-specified target-by-pre-specified target basis, for up to six pre-specified targets, either (i) an exclusive, royalty-bearing, sublicensable worldwide license under all of our applicable intellectual property to research, develop, manufacture, use, commercialize and otherwise exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that is directed to such pre-specified target, contains or comprises Primary TCR alpha/beta T Cells and is derived from *ex vivo* application of our reagent (the "Exclusive Option") or (ii) a non-exclusive, royalty-bearing, sublicensable worldwide license under all our applicable intellectual property to research, develop, manufacture, use commercialize and otherwise exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that is directed to such pre-specified target, contains or comprises TCR NK cells derived from iPSC immune cells or TCR T cells derived from donor-derived or iPSC immune cells. Affini-T can exercise its options for either an exclusive license or a non-exclusive license, or both, for each pre-specified target by providing written notice prior to the earlier of (x) the end of the Affini-T Agreement term or (y) 90 days following the filing of an IND for a licensed product directed to a pre-specified target, subject to the payment of certain fees per each option exercised. After the option exercise, Affini-T has agreed to use commercially reasonable efforts to conduct all development and commercialization activities for a licensed product, and development and commercialization of all licensed products will be at Affini-T's sole cost and expense.

On a target-by-target basis, (1) until the earlier of Affini-T's (a) exercise of an Exclusive Option, (b) written notice not to exercise an Exclusive Option or (c) expiration of an applicable Exclusive Option or (2) upon exercise of an Exclusive Option, we and our affiliates shall not exploit, or work with any third party to exploit, any *ex vivo* gene edited products directed to the applicable target covered by such Exclusive Option.

In connection with the Affini-T Agreement, we received upfront equity consideration of 719,920 shares of Affini-T's common stock with an estimated fair value of $1.3 million in June 2022. The fair value of Affini-T's shares of common stock was estimated by our management, considering the most recent third-party valuation. Affini-T has also agreed to reimburse us for expenses incurred while performing research activities under the research plans. As of June 30, 2023, we received a total of $1.9 million related to reimbursable expenses and recognized $2.3 million in accounts receivable. Additionally, we are eligible to receive (i) 933,650 shares of Affini-T's common stock upon the achievement of a regulatory milestone, which is the earlier of a submission of a drug master file to the FDA or an acceptance of an IND filing for a licensed product by the FDA, (ii) up to $18.8 million in future developmental milestone payments depending on the completion of or the number of patients dosed in, the relevant human clinical trial, or the initiation of a pivotal trial, and $40.6 million in future regulatory approval milestone payments, which include regulatory approvals in the U.S. and other markets for licensed products directed to a pre-specified target if options for both exclusive and non-exclusive licenses are exercised with respect to such target, (iii) up to $250.0 million in sales-based milestones for aggregate sales of all licensed products directed to a given pre-specified target and (iv) royalties ranging from a low-single digit to high-single digit percentage of worldwide annual net sales of licensed products.

The initial term of the Affini-T Agreement is five years from the effective date. If Affini-T exercises an Exclusive Option with respect to any pre-specified target during the initial term, the initial term will be extended by an additional five years. Following the expiration of the extended term, if any, the agreement will continue on a

target-by-target basis and expire with respect to such target upon the expiration of the royalty term for all licensed products directed to such target. The Affini-T Agreement may be terminated during the term by either party for an uncured material breach by, or bankruptcy of, the other party. Additionally, Affini-T may terminate the Affini-T Agreement for convenience, in its entirety, on a research plan-by-research plan basis, on a target-by-target basis or on a licensed product-by-licensed product basis, by providing prior written notice. Upon a material breach and with written notice to us, in lieu of termination, Affini-T shall have the right to continue the agreement at payments payable at a certain percentage reduction.

Ionis Collaboration and License Agreement

On November 10, 2022, the effective date, we entered into a Collaboration and License Agreement (the "Ionis Agreement") with Ionis to collaborate on drug discovery and exploratory research activities to advance new medicines using gene editing strategies, with the goal of discovering novel medicines. Pursuant to the terms of the Ionis Agreement, we granted Ionis and its affiliates a worldwide exclusive, royalty-bearing license, with the right to grant sublicenses, to use all licensed systems and licensed products in the field of *in vivo* gene editing for all therapeutic, prophylactic, palliative, and analgesic uses in humans. In connection with the Ionis Agreement, we also have the right to exercise an exclusive option to co-develop and co-commercialize certain products under a drug discovery program. A joint steering committee was established by both parties to coordinate, oversee, and monitor the research and drug discovery activities under the Ionis Agreement. Each party must use commercially reasonable efforts to perform and complete its respective activities under the applicable program plans approved by the joint steering committee.

We will collaborate to discover therapeutic products under a drug discovery program and develop a drug discovery plan for each target, selected by Ionis. The target selection is divided into two waves: up to four targets in Wave 1 and up to four targets in Wave 2. For each drug discovery program, once the parties identify a development candidate that is suitable for further development, Ionis will be responsible for the development and commercialization of products resulting from such program. Per the terms of the Ionis Agreement, at any time prior to the designation of a development candidate for a drug discovery program and for any reason, Ionis may replace the collaboration target, provided such target has not previously been substituted out. Ionis may substitute (i) up to two Wave 1 targets and (ii) up to two Wave 2 targets.

The drug discovery activities for a program commence on the selection of a target and expire upon the earlier of (a) completion of all drug discovery activities for such program, (b) the fifth anniversary of the effective date and (c) selection of a development candidate for such drug discovery program. If one or more Wave 2 targets become collaboration targets as a result of the parties achieving enabled delivery and less than two years are remaining in the drug discovery term, then the term will be extended to the earlier of (i) the time that we complete all of our activities under the applicable drug discovery plan and (ii) the seventh anniversary of the effective date, subject to our consent.

We will also conduct an exploratory research program, and will jointly optimize gRNA and select delivery technologies and other activities. The exploratory research activities commence on the effective date and expire upon the earlier of (a) completion of all exploratory research activities established in the exploratory research plan, and (b) the fifth anniversary of the effective date.

We have the exclusive option to co-develop and co-commercialize the licensed products under a drug discovery program (the "Co-Co Option") with Ionis. The Co-Co Option may be exercised for (a) the initial Wave 1 target ("Target 1"), (b) no more than one of the other three discovery programs for the Wave 1 targets, and (c) no more than two drug discovery programs for the Wave 2 targets that become collaboration targets. If we exercise the Co-Co Option for a particular drug discovery program, that drug discovery program will automatically be deemed a "Co-Co Program", all corresponding licensed products be deemed "Co-Co Products," we will be obligated to pay Ionis an option exercise fee, and we and Ionis will enter into a separate co-development and cocommercialization agreement. The Co-Co Option exercise fee will equal 50% of Ionis'

internal costs and out-of-pocket costs incurred in the conduct of the drug discovery activities prior to the exercise of the Co-Co Option and be reduced by 50% of our corresponding costs incurred. Future development and commercialization costs will be shared equally. We may elect to reduce our cost-share percentage anywhere between 50% and 25% on a go-forward basis, provided we will continue to bear 50% of the costs of any clinical trials ongoing at the time of the election through the completion of the clinical trials.

We will manufacture all licensed systems and certain components of the applicable licensed products that are needed by Ionis for use in its development activities and all of our manufactured components needed by Ionis for use in its commercialization activities. We will provide the manufactured components at a price that represents the cost of goods plus 15%.

Pursuant to the terms of the Ionis Agreement, we have also been granted an option to obtain a non-exclusive, royalty-bearing license, with the right to grant sublicenses, for certain Ionis' background technology to use in up to eight therapeutic products discovered by us in the field of *in vivo* gene editing and directed to a Collaboration Target (each such product, a "Metagenomi Product" and each such option an "Ionis IP Option"), but subject to encumbrance checks with respect to particular targets. A Collaboration Target is a target that is selected by Ionis, and, with respect to us, is not the subject of discussions with a third party, is not the subject of a contractual grant of rights to a third party nor the subject of an internal research and development program. If we exercise our Ionis IP Option, we will pay to Ionis up to several million dollars per Metagenomi Product upon achievement of certain clinical and regulatory milestones. We are also obligated to pay Ionis royalties in an amount equal to a low single-digit royalty on the net sales of the applicable Metagenomi Product on product-by-product and country-by-country basis.

In November 2022, we received an $80.0 million upfront payment from Ionis for the Wave 1 drug discovery research collaboration and selected Target 1. Ionis selected its second target ("Target 2") in Wave 1 in December 2022, and we expect Ionis will select two final additional Wave 1 targets ("Target 3" and "Target 4") within the 12 months from the effective date, as permitted under the arrangement. Ionis has an option to select up to four Wave 2 targets at any time during the drug discovery term, if (a) an IND for any licensed product directed to a Wave 1 target is filed with the applicable regulatory authority or (b) the parties achieve enabled delivery for a non-liver target under the exploratory research activities, by providing written notice and by paying a Wave 2 target selection fee of $15.0 million or $30.0 million, depending on and per the selected target.

Ionis is obligated to reimburse us for all internal costs and out-of-pocket costs incurred in the performance of the exploratory research activities, up to an aggregate of $10.0 million, which is payable in quarterly installments of $0.5 million during the exploratory research term. As of June 30, 2023, we received a total of $1.0 million related to the reimbursable expenses. We are also eligible to receive (a) up to $29.0 million in future development milestone payments for each licensed product; (b) up to $60.0 million in future regulatory milestone payments for each licensed product; (c) up to $250.0 million in sales-based milestones for each licensed product; and (d) royalties on annual net sales of licensed products from a mid-single-digit to low-teens percentage, subject to customary reductions.

The term of the Ionis Agreement will continue (i) with respect to the drug discovery programs, until the expiration of all applicable royalty terms for a licensed product, (ii) with respect to the Co-Co Programs, until the parties cease all exploitation for the Co-Co Products that are the subject to such Co-Co Program, and (iii) with respect to the Metagenomi Products, until the expiration of the royalty term for a Metagenomi Product. The royalty term ends on the latest of the following two dates: (i) the expiration of (A) the last claim of any issued and unexpired patent, or (B) a claim within a patent application that has not been pending for more than seven years from the earliest date to which the claim or applicable patent application is entitled to claim priority and which claim has not been revoked, cancelled, withdrawn, held invalid, or abandoned, or (ii) 12 years following the first commercial sale of a licensed product.

The Ionis Agreement may be terminated during the term by either party for an uncured material breach or bankruptcy by the other party. Additionally, Ionis may terminate the Ionis Agreement for convenience and

without penalty, in its entirety or on a licensed product-by-licensed product basis, by providing 90 days' written notice. Upon termination, Ionis will transfer to us ownership of all regulatory approvals, and all licenses granted under the agreement with respect to the applicable products under the agreement shall terminate, subject to an orderly wind-down period and a right for Ionis to sell or otherwise dispose of applicable products on hand at the time of such termination. Upon our written request within 30 days following termination, Ionis will grant us an exclusive, royalty-bearing (as agreed by the parties at such time), right and license, with the right to grant sublicenses through multiple tiers, to patent rights and know-how controlled by Ionis and used in the development, commercialization, or exploitation of terminated products, solely for the exploitation of such terminated products in the terminated countries.

Competition

The pharmaceutical and biotechnology industries, including the gene therapy and genome editing fields, are characterized by rapidly advancing technologies, intense competition, and a reliance on strong intellectual property. We believe our metagenomics powered discovery platform along with our expertise in genome editing, drug discovery, clinical development, manufacturing and our ever-increasing IP portfolio, provide us with several key competitive advantages over our peers. Despite our competitive advantages, we face competition from several companies. There are numerous publicly traded companies utilizing CRISPR/Cas nuclease technology, including Caribou Biosciences, Inc., Editas Medicine, Inc., CRISPR Therapeutics AG, Intellia Therapeutics, Inc., and Graphite Bio, Inc., among others. Beam Therapeutics Inc. and Verve Therapeutics, Inc. utilize base editing technology and Prime Medicine utilizes prime editing technology. Several other companies such as Sangamo Therapeutics, Inc., Precision BioSciences, Inc., Cellectis S.A., and bluebird bio, Inc. utilize first-generation nuclease-based genome editing technologies, including ZFNs, engineered meganucleases and TALENs. We also face competition from companies utilizing gene therapy, oligonucleotides, and CAR-T therapeutic approaches.

There are several other private companies such as Arbor Biotech, Chroma Medicine, Inc., Mammoth Biosciences, Scribe Therapeutics, Tessera Therapeutics, Tome Biosciences, and Tune Therapeutics, Inc. that have announced they are working on genome- and epigenome-editing therapies.

Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future that are approved to treat the same diseases for which we may obtain approval for our product candidates. This may include other genome editing companies using antiquated or next generation genome editing approaches or other types of therapies, such as small molecule, antibody, and/or protein therapies.

In addition, many of our current or potential competitors, either alone or with their collaboration partners, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials and approved products than we do today. Mergers and acquisitions in the pharmaceutical, biotechnology and gene therapy industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. We also compete with these companies in recruiting, hiring, and retaining qualified scientific and management talent, establishing clinical trial sites and patient registration for clinical trials, obtaining manufacturing slots at contract manufacturing organizations. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, particularly if they represent cures, have fewer or less severe side effects, are more convenient, or are less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing

a strong market position before we are able to enter the market. The key competitive factors affecting the success of all of our programs are likely to be their efficacy, safety, convenience, and availability of reimbursement.

Manufacturing

Our genome editing technology is composed of multiple genome editing components including the nuclease, mRNA, gRNA, and in some instances may include a donor DNA or RNA template for insertions. We have extensively characterized each of these components and have made significant investment in scalable manufacturing and process automation to meet stringent current good manufacturing practices ("cGMP"). Our in-house cGMP facility is capable of manufacturing clinical grade nucleases and mRNA to supply both wholly-owned and collaboration programs. We partner with contact manufacturing organizations ("CMOs") for gRNA and DNA template development and supply and continue to invest in both viral and non-viral delivery technologies internally and with partners. We believe our ability to develop, characterize, and manufacture complex human genome editing components is essential to maintaining a competitive edge while pursuing a successful regulatory pathway for genetic medicine.

Intellectual Property

Our success depends in large part upon our ability to obtain and maintain our technology and intellectual property. To protect our intellectual property rights, we primarily rely on patents and trade secret laws, confidentiality procedures, and employee disclosure and invention assignment agreements. Our intellectual property is critical to our business and we strive to protect it through a variety of approaches, including by obtaining and maintaining patent protection in various countries for our genome editing technology and other inventions that are important to our business.

Patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. The time required for development, testing, and regulatory review of our genome editing systems limits the commercially useful lifespan of our patents.

The patent positions of companies like ours are generally uncertain and involve complex legal and factual questions. No consistent policy regarding the scope of patentable claims in the field of genome editing has emerged, for example, in the United States and in Europe. Changes in the patent laws and rules, either by legislation, judicial decisions, or regulatory interpretation may diminish our ability to protect our inventions and enforce our intellectual property rights. These changes could affect the scope and value of our intellectual property.

Filing, prosecuting, enforcing, and defending patents protecting our genome editing systems in all countries throughout the world would be prohibitively expensive. We cannot seek patent protection for our genome editing systems throughout the world. Furthermore, the intellectual property rights we obtain in some countries outside the United States can be less extensive than those obtained in the United States. The requirements for patentability may differ in certain countries, particularly in developing countries; thus, even in countries where we do pursue patent protection, there can be no assurance that any patents will issue with claims that cover our products.

Our ability to stop third parties from infringing any of our patented inventions, either directly or indirectly, will depend in part on our success in obtaining, defending, and enforcing patent claims that cover our genome editing systems. We cannot be sure that any patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future. We cannot be sure that any of our existing patents or any patents that may be granted to us in the future will be found by a court to be

enforceable. Protecting our competitive position around our genome editing systems may involve lawsuits to enforce our patents or other intellectual property, which is expensive and time consuming, and may ultimately be unsuccessful. Furthermore, our issued patents and those that may issue in the future may be challenged, narrowed, circumvented, or invalidated, which could limit our ability to stop competitors from marketing related genome editing systems or limit the length of the term of patent protection that we may have for our genome editing systems and future gene therapies. We cannot be sure that any of our existing patents or any patents that may be granted to us in the future will be useful in protecting our commercialized genome editing systems. The rights granted under any issued patents may not provide us with complete protection or competitive advantages against competitors with similar but not identical technology or technologies that achieve similar outcomes but with different approaches. For these reasons, we may have competition for our genome editing systems.

Our issued patents and those that may issue in the future do not guarantee us the right to practice our genome editing systems. Third parties may have issued patents or be granted patents in the future that could block our ability to commercialize our genome editing systems.

We and third parties rely on trade secrets to protect certain aspects of our genome editing systems. If we are unable to protect the confidentiality of our trade secrets, our competitive position could be harmed. Furthermore, reliance on trade secrets does not prevent third parties from independently inventing those aspects of our genome editing systems. While we take commercially reasonable steps to ensure that our employees do not use the trade secrets of third parties, third parties may file claims asserting that we or our employees have misappropriated their trade secret.

For this and other risks related to our technology, inventions, improvements, platforms, and genome editing technology, please see the section entitled “Risk Factors—Risks Related to Our Intellectual Property.”

Patent Portfolio

As of June 30, 2023, we own two issued U.S. patents, 13 pending U.S. non-provisional patent applications, 46 pending U.S. provisional patent applications, 75 pending foreign patent applications, including in Australia, Canada, China, Europe, Great Britain, Hong Kong, India, Japan, Korea, Mexico and Brazil, and 25 Patent Cooperation Treaty (“PCT”) patent applications.

The patent portfolios for our genome editing systems as of June 30, 2023 are summarized below.

Our type II CRISPR systems are protected by two issued U.S. patents with composition of matter claims covering genome editing systems using Type II nucleases, three pending U.S. non-provisional patent applications with composition of matter claims covering genome editing systems using Type II nucleases and methods of using them, and two pending U.S. provisional patent applications with composition of matter claims covering genome editing systems using Type II nucleases and methods of using them. Our type II CRISPR systems are also protected by two issued foreign patents with composition of matter claims covering genome editing systems using Type II nucleases, including in Great Britain and Mexico, 24 pending foreign patent applications with composition of matter claims covering genome editing systems using Type II nucleases and methods of using them, including in Australia, Canada, China, Europe, Great Britain, Hong Kong, India, Japan, Korea, Mexico, and Brazil, and two PCT patent applications with composition of matter claims covering genome editing systems using Type II nucleases and methods of using them. The aforementioned issued US patents will expire on February 14, 2040, and the issued foreign patents will expire on February 14, 2040. If issued, the aforementioned patent applications are expected to expire between February 14, 2040 and May 6, 2041.

Our type V CRISPR systems are protected by two pending U.S. non-provisional patent applications with composition of matter claims covering genome editing systems using Type V nucleases and three pending U.S. provisional patent applications with composition of matter claims covering genome editing systems using Type V nucleases and methods of using them. Our type V CRISPR systems are also protected by one issued foreign patent with composition of matter claims covering genome editing systems using Type V nucleases, including in Great Britain, 10 pending foreign patent applications with composition of matter claims covering genome editing systems using Type V nucleases and methods of using them, including in Australia, Canada, China, Europe, Great Britain, Hong Kong, India, Japan, South Korea, and Mexico, and one PCT patent application with composition of matter claims covering genome editing systems using Type V nucleases and methods of using them. If issued, the aforementioned patent applications are expected to expire between March 6, 2041 and July 29, 2043. The aforementioned issued foreign patents will expire on March 6, 2041.

Our base editor systems are protected by three pending U.S. non-provisional patent applications with composition of matter claims covering genome editing systems using nucleases and base editors and methods of using them, and one pending U.S. provisional patent application with composition of matter claims covering genome editing systems using nucleases and base editors and methods of using them. Our base editor systems are also protected by 12 pending foreign patent applications with composition of matter claims covering genome editing systems using nucleases and base editors and methods of using them, including in Australia, Canada, China, Europe, Great Britain, Hong Kong, India, Japan, Korea, Mexico, and Brazil, and one PCT patent applications with composition of matter claims covering genome editing systems using nucleases and base editors and methods of using them. If issued, the aforementioned patent applications are expected to expire on September 10, 2041.

Our CAST systems are protected by two pending U.S. non-provisional patent applications with composition of matter claims covering genome editing systems using nucleases in combination with either recombinases or transposases and methods of using them, and one pending U.S. provisional patent application with composition of matter claims covering genome editing systems using nucleases in combination with either recombinases or transposases and methods of using them. Our CAST systems are also protected by 17 pending foreign patent applications with composition of matter claims covering genome editing systems using nucleases in combination with either recombinases or transposases and methods of using them, including in Australia, Brazil, Canada, China, Europe, Great Britain, India, Japan, South Korea, and Mexico, and two PCT patent applications with composition of matter claims covering genome editing systems using nucleases in combination with either recombinases or transposases and methods of using them. If issued, the aforementioned patent applications are expired to expire between August 23, 2041 and March 23, 2043.

Our Cas chimera systems are protected by one pending U.S. non-provisional patent application with composition of matter claims covering genome editing systems using chimeric nucleases and methods of using them. Our Cas chimera systems are also protected by two pending foreign patent applications, including in Great Britain and Hong Kong with composition of matter claims covering genome editing systems using chimeric nucleases, one PCT patent application with composition of matter claims covering genome editing systems using chimeric nucleases and two PCT patent applications with composition of matter claims covering genome editing systems using chimeric nucleases and methods of using them. If issued, the aforementioned patent applications are expected to expire on January 21, 2042.

Our SMART nuclease systems are protected by one pending U.S. non-provisional patent application with composition of matter claims covering genome editing systems using small nucleases, and one pending U.S. provisional patent application with composition of matter covering genome editing systems using small nucleases and methods of using them. Our SMART nuclease systems are also protected by 10 pending foreign
patent applications with composition of matter covering genome editing systems using small nucleases and

methods of using them, including in Australia, Canada, China, Europe, Great Britain, Hong Kong, India, Japan, Korea, and Mexico, and two PCT patent applications with composition of matter claims covering genome editing systems using small nucleases and methods of using them. If issued, the aforementioned patent applications are expected to expire on March 31, 2040.

We cannot predict whether the patent applications we pursue or may license in the future will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide any protection from competitors. Even if our pending patent applications are granted as issued patents, those patents, as well as any patents we may license in the future from third parties now or in the future, may be challenged, circumvented or invalidated by third parties. Consequently, we may not obtain or maintain adequate patent protection for any of our programs and genome editing systems.

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which we file, the patent term is 20 years from the earliest date of filing of a non-provisional patent application. In the United States, the patent term of a patent may be extended by patent term adjustment, which compensates the patent owner for patent office delays. Additionally, in the United States, patents that cover an FDA-approved drug or biologic may also be eligible for patent term extension, which permits patent term restoration as compensation for the patent term lost during FDA regulatory review process. The Hatch-Waxman Act permits a patent term extension of up to five years beyond the expiration of the patent. The length of the patent term extension is related to the length of time the drug or biologic is under regulatory review. Patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent applicable to an approved drug or biologic may be extended and only those claims covering the approved drug or biologic, a method for using it, or a method for manufacturing it may be extended. Similar provisions are available in European Member States and other foreign jurisdictions to extend the term of a patent that covers an approved drug or biologic. In the future, if our investigational gene therapies receive FDA approval, we expect to apply for patent term extensions where applicable on patents covering those products. We plan to seek patent term extensions to any of our issued patents in any jurisdiction where these are available, however there is no guarantee that the applicable authorities, including the U.S. Patent and Trademark Office (“USPTO”) in the United States, will agree with our assessment of whether these extensions should be granted, and if granted, the length of these extensions.

Our intellectual property is critical to our business and we strive to protect it through a variety of approaches, including by obtaining and maintaining patent protection in various countries for our genome editing technology and other inventions that are important to our business.

Trademarks

As of June 30, 2023, we own the trademark registrations for Metagenomi in the United States.

Trade Secrets and Proprietary Information

In addition to our reliance on patent protection for our inventions, investigational gene therapies and research programs, we also rely on trade secrets, know-how, confidentiality agreements and continuing technological innovation to develop and maintain our competitive position. Although we take steps to protect our proprietary information and trade secrets, including through contractual means with our employees, advisors and consultants, these agreements may be breached and we may not have adequate remedies for any breach. In addition, third parties may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets or disclose our technology. As a result, we may not be able to meaningfully protect our trade secrets. It is our policy to require our employees, consultants, outside

scientific collaborators, sponsored researchers and other advisors to execute confidentiality agreements upon the commencement of employment or consulting relationships with us. These agreements provide that all confidential information concerning our business or financial affairs developed or made known to the individual or entity during the course of the party's relationship with us is to be kept confidential and not disclosed to third parties except in specific circumstances. In the case of employees, the agreements provide that all inventions conceived of by the individual during the course of employment, and which relate to or are reasonably capable or being used in our current or planned business or research and development are our exclusive property. In addition, we take other appropriate precautions, such as physical and technological security measures, to guard against misappropriation of our technology by third parties. However, such agreements and policies may be breached and we may not have adequate remedies for such breaches. For more information regarding the risks related to our intellectual property, see "Risk Factors—Risks Related to Our Intellectual Property."

Government Regulation

In the United States, biological products, including gene therapy products, are subject to regulation under the Federal Food, Drug, and Cosmetic Act ("FD&C Act"), and the Public Health Service Act ("PHS Act"), and other federal, state, local and foreign statutes and regulations. Both the FD&C Act and the PHS Act and their corresponding regulations govern, among other things, the research, development, clinical trial, testing, manufacturing, safety, efficacy, labeling, packaging, storage, record keeping, distribution, reporting, advertising, and other promotional practices involving biological products. Each clinical trial protocol for a gene therapy product must be reviewed by the FDA. FDA approval must be obtained before the marketing of biological products. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources and we may not be able to obtain the required regulatory approvals.

U.S. Biological Product Development Process

The process required by the FDA before a biological product candidate may be marketed in the United States generally involves the following:

- completion of nonclinical laboratory tests and animal studies according to good laboratory practices ("GLPs"), unless justified and applicable requirements for the humane use of laboratory animals or other applicable regulations;
- submission to the FDA of an application for an IND, which must become effective before human clinical trials may begin;
- approval of the protocol and related documentation by an independent institutional review board ("IRB"), or ethics committee at each clinical trial site before each study may be initiated;
- performance of adequate and well-controlled human clinical trials according to the FDA's regulations commonly referred to as good clinical practices ("GCPs"), and any additional requirements for the protection of human research subjects and their health information, to establish the safety and efficacy of the proposed biological product for its intended use;
- submission to the FDA of a biologics license application ("BLA"), for regulatory approval that includes sufficient evidence of establishing the safety, purity and potency of the proposed biological product for its intended indication, including from results of nonclinical testing and clinical trials;

- satisfactory completion of an FDA inspection of the manufacturing facility or facilities where the biological product is produced to assess compliance with cGMP, to assure that the facilities, methods and controls are adequate to preserve the biological product's identity, strength, quality and purity and, if applicable, the FDA's current good tissue practices ("CGTPs"), for the use of human cellular and tissue products;
- potential FDA audit of the nonclinical study and clinical trial sites that generated the data in support of the BLA in accordance with any applicable expedited programs or designations;
- review of the product candidate by an FDA advisory committee, where appropriate or if applicable;
- payment of user fees for FDA review of the BLA (unless a fee waiver applies); and
- FDA review and approval, or licensure, of the BLA.

Before testing any biological product candidate, including a gene therapy product, in humans, the product candidate enters the preclinical testing stage. Preclinical tests, also referred to as nonclinical studies, include laboratory evaluations of product biological characteristics, chemistry, toxicity, and formulation, as well as animal studies to assess the potential safety and activity of the product candidate. The conduct of the preclinical tests must comply with federal regulations and requirements including GLPs.

An IND is an exemption from the FD&C Act that allows an investigational product candidate to be shipped in interstate commerce for use in a clinical trial and a request for FDA authorization to administer such investigational product candidate to humans. Such authorization must be secured prior to interstate shipment and administration of any product candidate that is not the subject of an approved BLA. In support of a request for an IND, applicants must submit a protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. In addition, the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and plans for clinical trials, among other things, must be submitted to the FDA as part of an IND. The FDA requires a 30-day waiting period after the filing of each IND before clinical trials may begin. This waiting period is designed to allow the FDA to review the IND to determine whether human research subjects will be exposed to unreasonable health risks. At any time during this 30-day period the FDA may raise concerns or questions about the conduct of the trials as outlined in the IND and impose a clinical hold or partial clinical hold. In this case, the IND sponsor and the FDA must resolve any outstanding concerns before clinical trials can begin.

Following commencement of a clinical trial, the FDA may also place a clinical hold or partial clinical hold on that trial. A clinical hold is an order issued by the FDA to the sponsor to delay a proposed clinical investigation or to suspend an ongoing investigation. A partial clinical hold is a delay or suspension of only part of the clinical work requested under the IND. No more than 30 days after imposition of a clinical hold or partial clinical hold, the FDA will provide the sponsor a written explanation of the basis for the hold. Following issuance of a clinical hold or partial clinical hold, an investigation may only resume after the FDA has notified the sponsor that the investigation may proceed. There also are requirements governing the reporting of ongoing clinical trials and completed clinical trial results to public registries. Information about certain clinical trials, including clinical trial results, must be submitted within specific timeframes for publication on the www.clinicaltrials.gov website.

A sponsor may choose, but is not required, to conduct a foreign clinical trial under an IND. When a foreign clinical trial is conducted under an IND, all FDA IND requirements must be met unless waived. When a foreign clinical trial is not conducted under an IND, the sponsor must ensure that the study complies with certain regulatory requirements of the FDA in order to use the study as support for an IND or application for regulatory approval or licensing. In particular, such studies must be conducted in accordance with GCP, including review and approval by an independent ethics committee ("IEC"), and informed consent from subjects. The FDA must be able to validate the data through an onsite inspection, if deemed necessary by the FDA.

An IRB representing each institution participating in the clinical trial must review and approve the plan for any clinical trial before it commences at that institution, and the IRB must conduct continuing review and reapprove the study at least annually. The IRB must review and approve, among other things, the study protocol and informed consent information to be provided to study subjects. An IRB must operate in compliance with FDA regulations. An IRB can suspend or terminate approval of a clinical trial at its institution, or an institution it represents, if the clinical trial is not being conducted in accordance with the IRB's requirements or if the product candidate has been associated with unexpected serious harm to patients. Some trials are overseen by an independent group of qualified experts organized by the trial sponsor, known as a data safety monitoring board or committee ("DSMB"). This group provides authorization as to whether or not a trial may move forward at designated check points based on access that only the group maintains to available data from the study.

In addition to the submission of an IND to the FDA before initiation of a clinical trial in the United States, certain human clinical trials involving recombinant or synthetic nucleic acid molecules may be subject to oversight of institutional biosafety committees ("IBCs"), as set forth in the National Institutes of Health ("NIH"), Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules ("NIH Guidelines"). Under the NIH Guidelines, recombinant and synthetic nucleic acids are defined as: (i) molecules that are constructed by joining nucleic acid molecules that can replicate in a living cell (i.e., recombinant nucleic acids); (ii) nucleic acid molecules that are chemically or by other means synthesized or amplified, including those that are chemically or otherwise modified but can base pair with naturally occurring nucleic acid molecules (i.e., synthetic nucleic acids); or (iii) molecules that result from the replication of those described in (i) or (ii). Specifically, under the NIH Guidelines, supervision of human gene transfer trials includes evaluation and assessment by an IBC, a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding for recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them.

Clinical trials typically are conducted in three sequential phases that may overlap or be combined:

- Phase 1. The biological product candidate is initially introduced into healthy human subjects and tested for safety. In the case of some biological product candidates for severe or life-threatening diseases, especially when the product candidate may be too inherently toxic to ethically administer to healthy volunteers, the initial human testing is often conducted in patients.
- Phase 2. The biological product candidate is evaluated in a limited patient population to identify possible adverse effects and safety risks, to preliminarily evaluate the efficacy of the product candidate for specific targeted diseases and to determine dosage tolerance, optimal dosage and dosing schedule.
- Phase 3. Clinical trials are undertaken to further evaluate dosage, clinical efficacy, potency and safety in an expanded patient population at geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the product candidate and provide an adequate basis for approval and product labeling.

Post-approval clinical trials, sometimes referred to as Phase 4 clinical trials, may be conducted after initial regulatory approval. These clinical trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication, particularly for long-term safety follow-up. The FDA generally recommends that sponsors of human gene therapy product candidates and genome editing product candidates observe subjects for potential gene therapy-related delayed adverse events for up to a 15-year period, including five years of annual examinations followed by ten years of annual queries, either by telephone or by questionnaire, of study subjects.

During all phases of clinical development, the FDA requires extensive monitoring and auditing of all clinical activities, clinical data, and clinical trial investigators. Annual progress reports detailing the results of the clinical trials must be submitted to the FDA. Written IND safety reports must be promptly submitted to the FDA and the investigators for serious and unexpected suspected adverse events, any findings from other studies, tests in laboratory animals or *in vitro* testing that suggest a significant risk for human subjects, or any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator brochure. The sponsor must submit an IND safety report within 15 calendar days after the sponsor determines that the information qualifies for reporting. The sponsor also must notify the FDA of any unexpected fatal or life-threatening suspected adverse reaction within seven calendar days after the sponsor's initial receipt of the information. The FDA or the sponsor, acting on its own or based on a recommendation from the sponsor's data safety monitoring board may suspend a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical trial at its institution if the clinical trial is not being conducted in accordance with the IRB's requirements or if the biological product candidate has been associated with unexpected serious harm to patients.

Concurrent with clinical trials, companies usually complete additional animal studies and also must develop additional information about the physical characteristics of the biological product candidate as well as finalize a process for manufacturing the product candidate in commercial quantities in accordance with cGMP. To help reduce the risk of the introduction of adventitious agents with use of biological product candidates, the PHS Act emphasizes the importance of manufacturing control for product candidates whose attributes cannot be precisely defined. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, the sponsor must develop methods for testing the identity, strength, quality, potency, and purity of the final biological product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the biological product candidate does not undergo unacceptable deterioration over its shelf life.

U.S. Review and Approval Processes

After the completion of clinical trials of a biological product candidate, FDA approval of a BLA must be obtained before commercial marketing of the biological product. The BLA must include results of product development, laboratory and animal studies, human studies, information on the manufacture and composition of the product, proposed labeling and other relevant information. The testing and approval processes require substantial time and effort and there can be no assurance that the FDA will accept the BLA for filing and, even if filed, that any approval will be granted on a timely basis, if at all.

Within 60 days following submission of the application, the FDA reviews a BLA to determine if it is substantially complete before the FDA accepts it for filing. The FDA may refuse to file any BLA that it deems incomplete or not properly reviewable at the time of submission and may request additional information. In this event, the BLA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing. In most cases, the submission of a BLA is subject to a substantial application user fee, although the fee may be waived under certain circumstances. Under the performance goals and policies implemented by the FDA under the Prescription Drug User Fee Act ("PDUFA"), for original BLAs, the FDA targets ten months from the filing date in which to complete its initial review of a standard application and respond to the applicant, and six months from the filing date for an application with priority review. The FDA does not always meet its PDUFA goal dates, and the review process is often significantly extended by FDA requests for additional information or clarification. This review typically takes 12 months from the date the BLA is submitted to the FDA because the FDA has approximately two months to make a "filing" decision. The review process and the PDUFA goal date may be extended by three months if the FDA requests or the BLA sponsor otherwise provides additional information or clarification regarding information already provided in the submission within the last three months before the PDUFA goal date.

Once the submission is accepted for filing, the FDA begins an in-depth substantive review of the BLA. The FDA reviews the BLA to determine, among other things, whether the proposed product is safe, pure, and potent for its intended use, and whether the product is being manufactured in accordance with cGMP to ensure the continued safety, purity, and potency of such product. The FDA may refer applications for novel biological products or biological products that present difficult or novel questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation, and a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions. During the biological product approval process, the FDA also will determine whether a Risk Evaluation and Mitigation Strategy ("REMS"), is necessary to assure the safe use of the biological product. If the FDA concludes a REMS is needed, the sponsor of the BLA must submit a proposed REMS; the FDA will not approve the BLA without a REMS, if required.

Before approving a BLA, the FDA typically will inspect the facilities at which the product is manufactured. The FDA will not approve the product unless it determines that the manufacturing processes and facilities are in compliance with cGMP and adequate to assure consistent production of the product within required specifications. For a gene therapy product, the FDA also will not approve the product if the manufacturer is not in compliance with the CGTPs. These are FDA regulations that govern the methods used in, and the facilities and controls used for, the manufacture of human cells, tissues, and cellular and tissue-based products ("HCT/Ps"), which are human cells or tissue intended for implantation, transplant, infusion, or transfer into a human recipient. The primary intent of the CGTP requirements is to ensure that cell and tissue-based products are manufactured in a manner designed to prevent the introduction, transmission and spread of communicable disease. FDA regulations also require tissue establishments to register and list their HCT/Ps with the FDA and, when applicable, to evaluate donors through appropriate screening and testing. Additionally, before approving a BLA, the FDA will typically inspect one or more clinical sites to assure that the clinical trials were conducted in compliance with IND study requirements and GCP requirements. To assure cGMP, CGTP and GCP compliance, an applicant must incur significant expenditure of time, money, and effort in the areas of training, record keeping, production and quality control.

Under the Pediatric Research Equity Act ("PREA"), a BLA or supplement to a BLA for a novel product (e.g., new active ingredient, new indication, etc.) must contain data to assess the safety and effectiveness of the biological product for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDA may grant deferrals for submission of data or full or partial waivers. Unless otherwise required by regulation, PREA does not apply to any biological product for an indication for which orphan designation has been granted.

After the FDA evaluates a BLA and conducts inspections of manufacturing facilities where the biological product will be manufactured, the FDA may issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A Complete Response Letter indicates that the review cycle of the application is complete, and the application will not be approved in its present form. A Complete Response Letter will usually describe all of the deficiencies that the FDA has identified in the BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the Complete Response Letter without first conducting required inspections, testing submitted product lots and/or reviewing proposed labeling. In issuing the Complete Response Letter, the FDA may recommend actions that the applicant might take to place the BLA in condition for approval, including requests for additional information or clarification, which may include the potential requirement for additional preclinical studies or clinical trials or additional manufacturing activities. If a Complete Response Letter is issued, the applicant may either resubmit the BLA, addressing all of the deficiencies identified in the letter, or withdraw the application or request an opportunity for a hearing. The

FDA may delay or refuse approval of a BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If a product receives regulatory approval, the approval may be significantly limited to specific diseases and dosages or the indications for use may otherwise be limited, including to subpopulations of patients, which could restrict the commercial value of the product. Further, the FDA may require that certain contraindications, warnings precautions or interactions be included in the product labeling. The FDA may impose restrictions and conditions on product distribution, prescribing or dispensing in the form of a REMS, or otherwise limit the scope of any approval. In addition, the FDA may require post-marketing clinical trials, sometimes referred to as Phase 4 clinical trials, designed to further assess a biological product's safety and effectiveness, and testing and surveillance programs to monitor the safety of approved products that have been commercialized.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biological product candidate intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States and for which there is no reasonable expectation that the cost of developing and making a drug or biological product candidate available in the United States for this type of disease or condition will be recovered from sales of the product. Orphan product designation must be requested before submitting a BLA. After the FDA grants orphan product designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA.

If a product candidate that has orphan drug designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan drug exclusive approval (or exclusivity), which means that the FDA may not approve any other applications, including a full BLA, to market the same product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity by means of greater effectiveness, greater safety or providing a major contribution to patient care or if the holder of the orphan drug exclusivity cannot assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the product was designated. Orphan drug exclusivity does not prevent the FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application fee. A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan drug designation. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Expedited Development and Review Programs

The FDA has various programs, including fast track designation, breakthrough therapy designation, priority review and accelerated approval, that are intended to expedite or simplify the process for the development and FDA review of drugs and biologics that are intended for the treatment of serious or life-threatening diseases or conditions. These programs do not change the standards for approval but may help expedite the development or approval process. To be eligible for fast track designation, new drugs and biological products must be intended to treat a serious or life-threatening condition and demonstrate the potential to address unmet medical needs for the condition. Fast track designation applies to the combination of the product and the

specific indication for which it is being studied. The sponsor of a new drug or biologic may request the FDA to designate the drug or biologic as a fast track product at any time during the clinical development of the product. One benefit of fast track designation, for example, is that the FDA may consider for review sections of the marketing application for a product that has received fast track designation on a rolling basis before the complete application is submitted.

Under the FDA's breakthrough therapy program, products intended to treat a serious or life-threatening disease or condition may be eligible for the benefits of the fast track program when preliminary clinical evidence demonstrates that such product may have substantial improvement on one or more clinically significant endpoints over existing therapies. Additionally, the FDA will seek to ensure the sponsor of a breakthrough therapy product receives timely advice and interactive communications to help the sponsor design and conduct a development program as efficiently as possible.

Any product is eligible for priority review if it has the potential to provide safe and effective therapy where no satisfactory alternative therapy exists or a significant improvement in the treatment, diagnosis or prevention of a disease compared to marketed products. The FDA will attempt to direct additional resources to the evaluation of an application for a new drug or biological product designated for priority review in an effort to facilitate the review. Under priority review, the FDA's goal is to review an application in six months once it is filed, compared to ten months for a standard review.

Additionally, a product may be eligible for accelerated approval. Drug or biological products studied for their safety and effectiveness in treating serious or life-threatening illnesses and that provide meaningful therapeutic benefit over existing treatments may receive accelerated approval, which means that they may be approved on the basis of adequate and well-controlled clinical trials establishing that the product has an effect on a surrogate endpoint that is reasonably likely to predict a clinical benefit, or on the basis of an effect on an intermediate clinical endpoint other than survival or irreversible morbidity. As a condition of approval, the FDA may require that a sponsor of a drug or biological product receiving accelerated approval perform adequate and well-controlled post-marketing clinical trials with due diligence, and, under the Food and Drug Omnibus Reform Act of 2022 ("FDORA"), the FDA is now permitted to require, as appropriate, that such trials be underway prior to approval or within a specific time period after the date of approval for a product granted accelerated approval. Under FDORA, the FDA has increased authority for expedited procedures to withdraw approval of a product or indication approved under accelerated approval if, for example, the confirmatory trial fails to verify the predicted clinical benefit of the product. In addition, for products being considered for accelerated approval, the FDA generally requires, unless otherwise informed by the agency, that all advertising and promotional materials intended for dissemination or publication be submitted to the agency for review, which could adversely affect the timing of the commercial launch of the product.

RMAT Designation

As part of the 21st Century Cures Act, Congress amended the FD&C Act to facilitate an efficient development program for and expedite review of regenerative medicine advanced therapies ("RMAT"), which include cell and gene therapies, therapeutic tissue engineering products, human cell and tissue products and combination products using any such therapies or products. RMAT do not include those HCT/Ps regulated solely under section 361 of the PHS Act and 21 CFR Part 1271. This program is intended to facilitate efficient development and expedite review of regenerative medicine therapies, which are intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition and qualify for RMAT designation. A drug sponsor may request that FDA designate a drug as a RMAT concurrently with or at any time after submission of an IND. FDA has 60 calendar days to determine whether the drug meets the criteria, including whether there is preliminary clinical evidence indicating that the drug has the potential to address unmet medical needs for a serious or life-threatening disease

or condition. A BLA for a regenerative medicine therapy that has received RMAT designation may be eligible for priority review or accelerated approval through use of surrogate or intermediate endpoints reasonably likely to predict long-term clinical benefit, or reliance upon data obtained from a meaningful number of sites. Benefits of RMAT designation also include early interactions with FDA to discuss any potential surrogate or intermediate endpoint to be used to support accelerated approval. A regenerative medicine therapy with RMAT designation that is granted accelerated approval and is subject to post-approval requirements may fulfill such requirements through the submission of clinical evidence from clinical trials, patient registries, or other sources of real world evidence, such as electronic health records; the collection of larger confirmatory data sets; or post-approval monitoring of all patients treated with such therapy prior to its approval. Like some of the FDA's other expedited development programs, RMAT designation does not change the standards for approval but may help expedite the development or approval process.

Rare Pediatric Disease Designation and Priority Review Vouchers

Under the or FD&C Act, as amended, the FDA incentivizes the development of product candidates that meet the definition of a "rare pediatric disease," defined to mean a serious or life-threatening disease in which the serious of life-threatening manifestations primarily affect individuals aged from birth to 18 years and the disease affects fewer than 200,000 individuals in the United States or affects 200,000 or more in the United States and for which there is no reasonable expectation that the cost of developing and making in the United States a drug or biologic for such disease or condition will be received from sales in the United States of such drug or biologic. The sponsor of a product candidate for a rare pediatric disease may be eligible for a voucher that can be used to obtain a priority review for a subsequent marketing application after the date of approval of the rare pediatric disease drug product. A sponsor may request rare pediatric disease designation from the FDA prior to the submission of its BLA. A rare pediatric disease designation does not guarantee that a sponsor will receive a priority review voucher ("PRV") upon approval of its BLA. Moreover, a sponsor who chooses not to submit a rare pediatric disease designation request may nonetheless receive a PRV upon approval of their marketing application if they request such a voucher in their original marketing application and meet all of the eligibility criteria. If a PRV is received, it may be sold or transferred an unlimited number of times. Congress has extended the PRV program until September 30, 2024, with the potential for PRVs to be granted until September 30, 2026.

Post-Approval Requirements

Maintaining substantial compliance with applicable federal, state and local statutes and regulations requires the expenditure of substantial time and financial resources. Products manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. If there are any modifications to the product, including changes in indications, labeling or manufacturing processes or facilities, the applicant may be required to submit and obtain FDA approval of a new BLA or BLA supplement, which may require the development of additional data or preclinical studies and clinical trials. Such regulatory reviews can result in denial or modification of the planned changes, or requirements to conduct additional tests or evaluations that can substantially delay or increase the cost of the planned changes. The FDA may also impose a number of post-approval requirements as a condition of approval of a BLA. For example, the FDA may require post-marketing testing, including Phase 4 clinical trials, and surveillance to further assess and monitor the product's safety and effectiveness after commercialization.

Manufacturers of biological products are required to comply with applicable requirements in the cGMP, including quality control and quality assurance and maintenance of records and documentation. Other post-approval requirements applicable to biological products include reporting of cGMP deviations that may affect

the identity, potency, purity and overall safety of a distributed product, record-keeping requirements, reporting of adverse effects, reporting updated safety and efficacy information, and complying with electronic record and signature requirements. After a BLA is approved, the product also may be subject to official lot release. As part of the manufacturing process, the manufacturer is required to perform certain tests on each lot of the product before it is released for distribution. If the product is subject to official release by the FDA, the manufacturer submits samples of each lot of product to the FDA together with a release protocol showing a summary of the history of manufacture of the lot and the results of all of the manufacturer's tests performed on the lot. The FDA also may perform certain confirmatory tests on lots of some products, such as viral vaccines, before releasing the lots for distribution by the manufacturer. In addition, the FDA conducts laboratory research related to the regulatory standards on the safety, purity, potency, and effectiveness of biological products.

We also must comply with the FDA's advertising and promotion requirements, such as those related to direct-to-consumer advertising, the prohibition on promoting products for uses or in patient populations that are not described in the product's approved labeling (known as "off-label use"), industry-sponsored scientific and educational activities, and promotional activities involving the internet. Discovery of previously unknown problems or the failure to comply with the applicable regulatory requirements may result in restrictions on the marketing of a product or withdrawal of the product from the market as well as possible civil or criminal sanctions. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may subject an applicant or manufacturer to administrative or judicial civil or criminal sanctions and adverse publicity. FDA sanctions could include refusal to approve pending applications, withdrawal of an approval, clinical holds, warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, mandated corrective advertising or communications with doctors or other stakeholders, debarment, restitution, disgorgement of profits, or civil or criminal penalties.

Biological product manufacturers and other entities involved in the manufacture and distribution of approved biological products, and those supplying products, ingredients, and components of them, are required to register their establishments with the FDA and certain state agencies and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP and other laws. Accordingly, manufacturers must continue to expend time, money, and effort in the area of production and quality control to maintain cGMP compliance. Discovery of problems with a product after approval may result in restrictions on a product, manufacturer, or holder of an approved BLA, including withdrawal of the product from the market. In addition, changes to the manufacturing process or facility generally require prior FDA approval before being implemented and other types of changes to the approved product, such as adding new indications and additional labeling claims, are also subject to further FDA review and approval.

U.S. Patent Term Restoration and Marketing Exclusivity

Depending upon the timing, duration, and specifics of the FDA approval of the use of our product candidates, some U.S. patents that may issue from our pending patent applications may be eligible for limited patent term extension under the Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent restoration term of up to five years as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of a BLA plus the time between the submission date of a BLA and the approval of that application, except that the review period is reduced by any time during which the applicant failed to exercise due diligence. Only one patent applicable to an approved biological product is eligible for the extension and the application for the extension must be submitted prior to

the expiration of the patent. In addition, only those claims covering the approved product, a method for using it, or a method for manufacturing it may be extended, and a patent can only be extended once and only for a single product. The USPTO, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration. In the future, we may apply for restoration of patent term for one of the patents that may issue from our pending patent applications, if and as applicable, to add patent life beyond its current expiration date, depending on the expected length of the clinical trials and other factors involved in the filing of the relevant BLA. However, there can be no assurance that our pending patent applications will issue or that we will benefit from any patent term extension or favorable adjustments to the terms of any patents we may own or in-license in the future.

A biological product can obtain pediatric market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued "Written Request" for such a study.

The Biologics Price Competition and Innovation Act of 2009 created an abbreviated approval pathway for biological products shown to be similar to, or interchangeable with, an FDA-licensed reference biological product. This amendment to the PHS Act attempts to minimize duplicative testing. Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, can be shown through analytical studies, animal studies and a clinical trial or trials. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product and, for products administered multiple times, the biologic and the reference biologic may be switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic.

A reference biological product is granted four- and 12-year exclusivity periods from the time of first licensure of the product. FDA will not accept an application for a biosimilar or interchangeable product based on the reference biological product until four years after the date of first licensure of the reference product, and FDA will not approve an application for a biosimilar or interchangeable product based on the reference biological product until twelve years after the date of first licensure of the reference product. "First licensure" typically means the initial date the particular product at issue was licensed in the United States. Date of first licensure does not include the date of licensure of (and a new period of exclusivity is not available for) a biological product if the licensure is for a supplement for the biological product or for a subsequent application by the same sponsor or manufacturer of the biological product (or licensor, predecessor in interest, or other related entity) for a change (not including a modification to the structure of the biological product) that results in a new indication, route of administration, dosing schedule, dosage form, delivery system, delivery device or strength, or for a modification to the structure of the biological product that does not result in a change in safety, purity, or potency. Therefore, one must determine whether a new product includes a modification to the structure of a previously licensed product that results in a change in safety, purity, or potency to assess whether the licensure of the new product is a first licensure that triggers its own period of exclusivity. Whether a subsequent application, if approved, warrants exclusivity as the "first licensure" of a biological product is determined on a case-by-case basis with data submitted by the sponsor.

Regulation Outside of the United States

In addition to regulations in the United States, we are subject to a variety of regulations in other jurisdictions governing clinical studies, commercial sales, and distribution of our products. Most countries outside of the United States require that clinical trial applications be submitted to and approved by the local regulatory authority for each clinical study. In the European Union, for example, an application must be submitted to the

national competent authority and an independent ethics committee in each country in which we intend to conduct clinical trials, much like the FDA and IRB, respectively. Under the new Clinical Trials Regulation (EU) No 536/2014, which replaced the Clinical Trials Directive 2001/20/EC on January 31, 2022, a single application is now made through the Clinical Trials Information System ("CTIS") for clinical trial authorization in up to 30 EU/EEA countries at the same time and with a single set of documentation.

The assessment of applications for clinical trials is divided into two parts (Part I contains scientific and medicinal product documentation and Part II contains the national and patient-level documentation). Part I is assessed by a coordinated review by the competent authorities of all European Union Member States in which an application for authorization of a clinical trial has been submitted (Member States concerned) of a draft report prepared by a Reference Member State. Part II is assessed separately by each Member State concerned. The role of the relevant ethics committees in the assessment procedure will continue to be governed by the national law of the Member State concerned, however overall related timelines are defined by the Clinical Trials Regulation. The new Clinical Trials Regulation also provides for simplified reporting procedures for clinical trial sponsors.

In addition, whether or not we obtain FDA approval for a product, we must obtain approval of a product by the comparable regulatory authorities of countries outside the United States before we can commence marketing of the product in those countries. The approval process and requirements vary from country to country, so the number and type of nonclinical, clinical, and manufacturing studies needed may differ, and the time may be longer or shorter than that required for FDA approval.

To obtain regulatory approval of our medicinal products under the European Union regulatory system, we are required to submit a marketing authorization application ("MAA"), to be assessed in the centralized procedure. The centralized procedure allows applicants to obtain a marketing authorization ("MA") that is valid throughout the European Union, and the additional Member States of the European Economic Area (Iceland, Liechtenstein and Norway) ("EEA"). It is compulsory for medicinal products manufactured using biotechnological processes, orphan medicinal products, advanced therapy medicinal products (gene-therapy, somatic cell-therapy or tissue-engineered medicines) and human products containing a new active substance which is not authorized in the European Union and which is intended for the treatment of HIV, AIDS, cancer, neurodegenerative disorders, auto-immune and other immune dysfunctions, viral diseases or diabetes. The centralized procedure is optional for any other products containing new active substances not authorized in the European Union or for products which constitute a significant therapeutic, scientific, or technical innovation or for which a centralized authorization is in the interests of patients at European Union level. When a company wishes to place on the market a medicinal product that is eligible for the centralized procedure, it sends an application directly to the European Medicines Agency ("EMA"), to be assessed by the Committee for Medicinal Products for Human Use ("CHMP"). The CHMP is responsible for conducting the assessment of whether a medicine meets the required quality, safety, and efficacy requirements, and whether the product has a positive risk/benefit profile. The procedure results in a European Commission decision, which is valid in all European Union Member States. The centralized procedure is as follows: full copies of the MAA are sent to a rapporteur and a co-rapporteur designated by the competent EMA scientific committee. They coordinate the EMA's scientific assessment of the medicinal product and prepare draft reports. Once the draft reports are prepared (other experts might be called upon for this purpose), they are sent to the CHMP, whose comments or objections are communicated to the applicant. The rapporteur is therefore the privileged interlocutor of the applicant and continues to play this role, even after the MA has been granted.

The rapporteur and co-rapporteur then assess the applicant's replies, submit them for discussion to the CHMP, and taking into account the conclusions of this debate, prepare a final assessment report. Once the evaluation is completed, the CHMP gives a favorable or unfavorable opinion as to whether to grant the authorization. When the opinion is favorable, it shall include the draft summary of product characteristics ("SmPC"), the

package leaflet, and the texts proposed for the various packaging materials. The time limit for the evaluation procedure is 210 days (excluding clock stops, when additional written or oral information is to be provided by the applicant in response to questions asked by the CHMP). The EMA then has fifteen days to forward its opinion to the European Commission, which will make a binding decision on the grant of an MA within 67 days of the receipt of the CHMP opinion.

There are two other procedures in the European Union for the grant of an MA in multiple European Union Member States. The decentralized procedure provides for approval by one or more other, or Concerned Member States, of an assessment of an application performed by one Member State, known as the Reference Member State. Under this procedure, an applicant submits an application, or dossier, and related materials including a draft SmPC, and draft labeling and package leaflet, to the Reference Member State and Concerned Member States. The Reference Member State prepares a draft assessment and drafts of the related materials within 120 days after receipt of a valid application. Within 90 days of receiving the Reference Member State's assessment report, each Concerned Member State must decide whether to approve the assessment report and related materials. If a Member State cannot approve the assessment report and related materials on the grounds of potential serious risk to the public health, the disputed points may eventually be referred to the European Commission, whose decision is binding on all Member States. Where a product has already been authorized for marketing in a European Union Member State, this national MA can be recognized in other Member States through the mutual recognition procedure.

The criteria for designating an "orphan medicinal product" in the European Union are similar in principle to those in the United States. Under Article 3 of Regulation (EC) 141/2000, a medicinal product may be designated as an orphan medicinal product if it is intended for the diagnosis, prevention, or treatment of a life-threatening or chronically debilitating condition that affects no more than five in 10,000 persons in the European Union when the application is made. In addition, orphan designation can be granted if the product is intended for a life threatening, seriously debilitating, or serious and chronic condition in the European Union and, without incentives, it is unlikely that sales of the product in the European Union would be sufficient to justify the necessary investment in its development. Orphan designation is only available if there is no other satisfactory method approved in the European Union of diagnosing, preventing, or treating the applicable orphan condition, or if such a method exists, the proposed orphan medicinal product will be of significant benefit to patients affected by such condition, as defined in Regulation (EC) 847/2000.

Orphan designation provides opportunities for fee reductions, protocol assistance, and access to the centralized procedure. Fee reductions are limited to the first year after an MA, except for small and medium enterprises. In addition, if a product which has an orphan designation subsequently receives a centralized MA for the indication for which it has such designation, the product is entitled to orphan market exclusivity, which means the EMA may not approve any other application to market a similar medicinal product for the same indication for a period of ten years. A "similar medicinal product" is defined as a medicinal product containing a similar active substance or substances as contained in an authorized orphan medicinal product, and which is intended for the same therapeutic indication. The exclusivity period may be reduced to six years if, at the end of the fifth year, it is shown that the designation criteria are no longer met, including where it is shown that the product is sufficiently profitable not to justify maintenance of market exclusivity. Additionally, an MA may be granted to a similar medicinal product for the same indication at any time if:

- the second applicant can establish that its product, although similar to the authorized product, is safer, more effective or otherwise clinically superior;
- the MA holder of the authorized product consents to a second orphan medicinal product application; or
- the MA holder of the authorized product cannot supply enough orphan medicinal product.

A pediatric investigation plan ("PIP"), in the European Union is aimed at ensuring that the necessary data are obtained to support the authorization of a medicine for children, through studies in children. All applications for Mas for new medicines have to include the results of studies as described in an agreed PIP, unless the medicine is exempt because of a deferral or waiver. This requirement also applies when an MA holder wants to add a new indication, pharmaceutical form, or route of administration for a medicine that is already authorized and covered by intellectual property rights. Several rewards and incentives for the development of pediatric medicines for children are available in the European Union. Medicines authorized across the European Union with the results of studies from a PIP included in the product information are eligible for an extension of their supplementary protection certificate ("SPC") by six months (provided an application for such extension is made at the same time as filing the SPC application for the product, or at any point up to two years before the SPC expires). This is the case even when the studies' results are negative. For orphan medicinal products, the incentive is an additional two years of market exclusivity. Scientific advice and protocol assistance at the EMA are free of charge for questions relating to the development of pediatric medicines. Medicines developed specifically for children that are already authorized but are not protected by a patent or supplementary protection certificate are eligible for a pediatric-use MA ("PUMA"). If a PUMA is granted, the product will benefit from ten years of market protection as an incentive.

In March 2016, the EMA launched an initiative, the PRIority Medicines ("PRIME") scheme, to facilitate development of product candidates in indications, often rare, for which few or no therapies currently exist. The PRIME scheme is intended to encourage development of products in areas of unmet medical need and provides accelerated assessment of products representing substantial innovation reviewed under the centralized procedure. Products from small- and medium-sized enterprises may qualify for earlier entry into the PRIME scheme than larger companies on the basis of compelling non-clinical data and tolerability data from initial clinical trials. Many benefits accrue to sponsors of product candidates with PRIME designation, including but not limited to, early and proactive regulatory dialogue with the EMA, frequent discussions on clinical trial designs and other development program elements, and potentially accelerated MAA assessment once a dossier has been submitted. Importantly, once a candidate medicine has been selected for the PRIME scheme, a dedicated contact and rapporteur from the CHMP or from the Committee for Advanced Therapies ("CAT") are appointed early in the PRIME scheme facilitating increased understanding of the product at EMA's committee level. An initial meeting with the CHMP/CAT rapporteur initiates these relationships and includes a team of multidisciplinary experts at the EMA to provide guidance on the overall development and regulatory strategies. PRIME eligibility does not change the standards for product approval, and there is no assurance that any such designation or eligibility will result in expedited review or approval.

The aforementioned European Union rules are generally applicable in the EEA.

The United Kingdom left the European Union on January 31, 2020, and the United Kingdom and the European Union have concluded a trade and cooperation agreement ("TCA") which was provisionally applicable since January 1, 2021 and has been formally applicable since May 1, 2021.

The TCA includes specific provisions concerning pharmaceuticals, which include the mutual recognition of GMP, inspections of manufacturing facilities for medicinal products and GMP documents issued, but does not provide for wholesale mutual recognition of United Kingdom and European Union pharmaceutical regulations. At present, Great Britain has implemented European Union legislation on the marketing, promotion and sale of medicinal products through the Human Medicines Regulations 2012 (as amended). Except in respect of the new European Union Clinical Trials Regulation, the regulatory regime in Great Britain therefore largely aligns with current European Union medicines regulations, however it is possible that these regimes will diverge more significantly in future now that Great Britain's regulatory system is independent from the European Union and the TCA does not provide for mutual recognition of United Kingdom and European Union pharmaceutical

legislation. However, notwithstanding that there is no wholesale recognition of European Union pharmaceutical legislation under the TCA, under a new framework mentioned below which will be put in place by the Medicines and Healthcare products Regulatory Agency ("MHRA"), the United Kingdom's medicines regulator, from January 1, 2024, the MHRA has stated that it will take into account decisions on the approval of Mas from the EMA (and certain other regulators) when considering an application for a Great Britain MA.

On February 27, 2023, the United Kingdom government and the European Commission announced a political agreement in principle to replace the Northern Ireland Protocol with a new set of arrangements, known as the "Windsor Framework". This new framework fundamentally changes the existing system under the Northern Ireland Protocol, including with respect to the regulation of medicinal products in the United Kingdom. In particular, the MHRA will be responsible for approving all medicinal products destined for the United Kingdom market (i.e., Great Britain and Northern Ireland), and the EMA will no longer have any role in approving medicinal products destined for Northern Ireland. A single United Kingdom-wide MA will be granted by the MHRA for all medicinal products to be sold in the United Kingdom, enabling products to be sold in a single pack and under a single authorization throughout the United Kingdom. The Windsor Framework was approved by the European Union-United Kingdom Joint Committee on March 24, 2023, so the United Kingdom government and the European Union will enact legislative measures to bring it into law.

The MHRA has introduced changes to national licensing procedures, including procedures to prioritize access to new medicines that will benefit patients, an accelerated assessment procedure and new routes of evaluation for novel products and biotechnological products. All existing European Union Mas for centrally authorized products were automatically converted (grandfathered) into United Kingdom Mas free of charge on January 1, 2021. For a period of three years from January 1, 2021, the MHRA may rely on a decision taken by the European Commission on the approval of a new MA in the centralized procedure, in order to more quickly grant a new Great Britain MA. A separate application will, however, still be required. On January 24, 2023, the MHRA announced that a new international recognition framework will be put in place from January 1, 2024, which will have regard to decisions on the approval of Mas made by the EMA and certain other regulators when determining an application for a new Great Britain MA. There is now no pre-MA orphan designation in Great Britain. Instead, the MHRA reviews applications for orphan designation in parallel to the corresponding MAA. The criteria are essentially the same, but have been tailored for the Great Britain market, i.e., the prevalence of the condition in Great Britain (rather than the European Union) must not be more than five in 10,000. Should an orphan designation be granted, the period of market exclusivity will be set from the date of first approval of the product in Great Britain.

Other Healthcare Laws and Compliance Requirements

Other Healthcare Laws

Biotechnology companies are subject to additional healthcare laws in the jurisdictions in which they conduct their business that may constrain the financial arrangements and relationships through which we research, as well as, in the future sell, market and distribute any products for which we obtain regulatory approval. Such laws include, without limitation, state and federal patient data privacy and security laws, federal and state anti-kickback laws, physician-self referral laws, false claims and transparency laws and regulations with respect to drug pricing and payments and other transfers of value made to physicians and other health care providers, and similar healthcare laws and regulations in the EU and other jurisdictions. Violations of any of such laws or any other governmental regulations that apply may result in significant penalties, including, without limitation, administrative, civil and criminal penalties, damages, fines, disgorgement, the curtailment or restructuring of operations, integrity oversight and reporting obligations to resolve allegations of noncompliance, and exclusion from participation in federal and state healthcare programs and imprisonment.

Coverage and Reimbursement

Sales of any product depend, in part, on the extent to which such product will be covered by third-party payors, such as federal, state, and foreign government healthcare programs, commercial insurance and managed healthcare organizations, and the level of reimbursement for such product by third-party payors. Decisions regarding the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. These third-party payors are increasingly reducing coverage and reimbursement for medical products, drugs and services. For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs. Additionally, separate reimbursement for the product itself or the treatment or procedure in which the product is used may not be available, which may impact physician utilization.

The U.S. government, state legislatures and foreign governments have also continued implementing cost-containment programs, including price controls, restrictions on coverage and reimbursement and requirements for substitution of generic (or biosimilar) products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit sales of any product. Decreases in third-party reimbursement for any product or a decision by a third-party payor not to cover a product could reduce physician usage and patient demand for the product and also have a material adverse effect on sales.

Healthcare Reform

In the United States, in March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, each as amended, collectively known as the ACA, was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers, and significantly affected the pharmaceutical industry. The ACA contained a number of provisions, including those governing enrollment in federal healthcare programs, reimbursement adjustments and changes to fraud and abuse laws. Since its enactment, there have been judicial and Congressional challenges to certain aspects of the ACA. Other legislative changes have been proposed and adopted since the ACA was enacted, including aggregate reductions of Medicare payments to providers of 2% per fiscal year.

Additionally, President Biden has issued multiple executive orders that have sought to reduce prescription drug costs. There has also been increasing legislative and enforcement interest in the United States with respect to drug pricing practices. Specifically, there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several U.S. Congressional inquiries and proposed and enacted federal and state legislation. The Inflation Reduction Act of 2022 (“IRA”), includes several provisions that impact the pharmaceutical industry, including provisions that reduce the out-of-pocket spending cap for Medicare Part D beneficiaries to $2,000 starting in 2025; impose new manufacturer financial liability on certain drugs under Medicare Part D, allow the U.S. government to negotiate Medicare Part B and Part D price caps for certain high-cost drugs and biologics without generic or biosimilar competition; require companies to pay rebates to Medicare for drug prices that increase faster than inflation; and delay until January 1, 2032 the implementation of the HHS rebate rule that would have limited the fees that pharmacy benefit managers can charge. Further, under the IRA, orphan drugs are exempted from the Medicare drug price negotiation program, but only if they have one orphan designation and for which the only approved indication is for that disease or condition. If a product receives multiple orphan designations or has multiple approved indications, it may not qualify for the orphan drug exemption. The effects of the IRA on our business and the healthcare industry in general is not yet known.

We expect that additional state and federal healthcare reform measures will be adopted in the future, any of which could impact the amounts that federal and state governments and other third-party payors will pay for healthcare products and services.

Data Privacy & Security

Numerous state, federal and foreign laws govern the collection, dissemination, use, access to, confidentiality and security of personal information, including health-related information. As our operations and business grow, we may become subject to or affected by U.S. federal and state laws and regulations, including the Health Information Portability and Accountability Act of 1996, and its implementing regulations, as amended ("HIPAA"), that govern the collection, use, disclosure, and protection of health-related and other personal information. In California the California Consumer Protection Act ("CCPA"), which went into effect on January 1, 2020 and was amended effective January 1, 2023, establishes a new privacy framework for covered businesses by creating an expanded definition of personal information, establishing new data privacy rights for consumers in the State of California, imposing special rules on the collection of consumer data from minors, and creating a new and potentially severe statutory damages framework for violations of the CCPA and for businesses that fail to implement reasonable security procedures and practices to prevent data breaches. While clinical trial data and information governed by HIPAA are currently exempt from the current version of the CCPA, other personal information may be applicable and possible changes to the CCPA may broaden its scope. Other states, including Virginia (effective January 1, 2023), Colorado (effective July 1, 2023), Connecticut (effective July 1, 2023), and Utah (effective December 31, 2023) have passed privacy legislation and more states may do so in the future, including Iowa, where the Iowa state legislature passed a comprehensive privacy legislation on March 15, 2023. State and non-U.S. laws, including for example the EU General Data Protection Regulation, also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts. Failure to comply with these laws, where applicable, can result in the imposition of significant civil and/or criminal penalties and private litigation. Privacy and security laws, regulations, and other obligations are constantly evolving, may conflict with each other to complicate compliance efforts, and can result in investigations, proceedings, or actions that lead to significant civil and/or criminal penalties and restrictions on data processing.

Employees and Human Capital Resources

As of June 30, 2023, we had more than 200 full-time employees, of which 69 have M.D. or Ph.D. degrees. Within our workforce, 176 employees are engaged in research and development and 35 are engaged in business development, finance, legal, and general management and administration. None of our employees are represented by labor unions or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and new employees, advisors and consultants. The principal purposes of our equity incentive plans are to attract, retain and reward personnel through the granting of equity-based compensation awards in order to increase shareholder value and the success of our company by motivating such individuals to perform to the best of their abilities and achieve our objectives.

Facilities

Our corporate headquarters is located in Emeryville, California, where we lease and occupy approximately 23,851 square feet of laboratory and office space at 1545 Park Avenue, Emeryville, California 94608. The current term of our lease expires in February 2031. The company also leases approximately 23,155 square feet of office space at 1485 Park Avenue, Emeryville, California 94608 and subleases approximately 75,662 square feet of combined office, research and laboratory space at 5959 Horton Street, Emeryville, California 94608.

We believe that our facilities are adequate for our current needs and for the foreseeable future. To meet the future needs of our business, we may lease additional or alternate space. We believe that suitable additional or substitute space at commercially reasonable terms will be available as needed to accommodate any future expansion of our operations.

Legal proceedings

From time to time, we may become involved in legal proceedings arising from the ordinary course of business. We record a liability for such matters when it is probable that future losses will be incurred and that such losses can be reasonably estimated. Significant judgment by us is required to determine both probability and the estimated amount. Our management is currently not aware of any legal matters that could have a material adverse effect on our financial position, results of operations or cash flows.

MANAGEMENT

The following table sets forth information about our executive officers and directors as of the date of this prospectus.

Name	Age	Position(s)
Executive Officers		
Brian C. Thomas, Ph.D.	54	Chief Executive Officer
Jian Irish, Ph.D., MBA	60	President and Chief Operating Officer
Sarah Noonberg, M.D., Ph.D.	55	Chief Medical Officer
Simon Harnest, M.Sc	36	Chief Investment Officer and Senior Vice President of Strategy
Alan Brooks, Ph.D.	58	Senior Vice President of Preclinical
Christopher T. Brown, Ph.D.	34	Vice President of Discovery
Simren Delaney, Ph.D., LLM	38	Vice President of Legal
Michael Conway, MBA, CPA	47	Vice President of Finance
Non-Employee Directors		
Juergen Eckhardt, M.D., MBA	56	Director
Sebastián Bernales, Ph.D.	47	Director
Risa Stack, Ph.D.	55	Director
Willard Dere, M.D.	69	Director
Santhosh Palani, Ph.D.	40	Director

The following is a biographical summary of the experience of our executive officers and directors. There are no family relationships among any of our executive officers or directors.

Executive Officers

Brian C. Thomas, Ph.D., is our founder and has served as our Chief Executive Officer since September 2016. Since December 2022, Dr. Thomas has served as Chairman of the Board of Directors of Haya Therapeutics, Inc. Previously, from 2001 to 2017, Dr. Thomas served as a program manager at University of California, Berkeley. From 1999 to 2001, Dr. Thomas served as a lead bioinformatics scientist at EOS Biotechnology (now PDL, Inc.). Dr. Thomas received his B.Sc. in cellular biology and his Ph.D. in biochemistry from University of Kansas and completed his post-doctoral research in computational biology at University of California, Berkeley.

Our board of directors believes that Dr. Thomas is qualified to serve as a director because of his considerable academic and research expertise, as well as his expansive knowledge about our Company as our founder and Chief Executive Officer.

Jian Irish, Ph.D., MBA, has served as our President since November 2021 and our Chief Operating Officer since January 2021. Prior to joining us, Dr. Irish held positions as Senior Vice President, Global Head of Manufacturing and Senior Vice President of Supply Chain at Kite Pharma (now a subsidiary of Gilead) from September 2016 to December 2020. Dr. Irish served as Interim Chief Operating Officer of Affini-T Therapeutics from January 2021

to January 2022. Dr. Irish also served as Interim Chief Technology Officer and a board member for Fosun Kite, a joint venture between Kite Pharma and Fosun Pharma, from October 2018 to April 2020. From December 2014 to August 2016, Dr. Irish held positions as Vice President of Biologics Supply, Outsourcing, Partnerships, and External Manufacturing and Vice President of Product Development at Sanofi. From January 2000 to September 2014, Dr. Irish held various leadership positions at Amgen in operations, including Executive Director of JAPAC Supply, Executive Director of Contract Manufacturing, Officer for Kirin-Amgen JV, and Global Operations Team Leader. Dr. Irish currently serves as an advisor to Ori Biotech, ORCA Biosystems, and ViTToria Biotherapeutics. Dr. Irish received a B.S. in chemical engineering from East China University of Science and Technology, an M.S. and Ph.D. in pharmaceutical sciences from Chiba University, and an MBA from University of California, Los Angeles, Anderson School of Management.

Sarah Noonberg, M.D., Ph.D., has served as our Chief Medical Officer since January 2023. Prior to joining us, Dr. Noonberg served as the Chief Medical Officer at Maze Therapeutics, Nohla Therapeutics and Prothena Corporation plc (Nasdaq: PRTA) from July 2020 to September 2022, May 2018 to May 2019 and May 2017 to May 2018, respectively. Dr. Noonberg served as Group Vice President and Head of Global Clinical Development at BioMarin Pharmaceuticals Inc. (Nasdaq: BMRN) from August 2015 to March 2017. From May 2007 to August 2015, she held several positions at Medivation, Inc., a biopharmaceutical company, culminating in the position of Senior Vice President of Early Development. Dr. Noonberg currently serves on the board of directors of Neoleukin Therapeutics (Nasdaq: NLTX) and Marinus Pharmaceuticals (Nasdaq: MRNS). She has also previously served on the board of directors of Protagonist Therapeutics, Inc. (Nasdaq: PTGX) from December 2017 to May 2023. Dr. Noonberg received her B.S. in engineering at Dartmouth College, her Ph.D. in bioengineering from the University of California, Berkeley and her M.D. from the University of California, San Francisco. Dr. Noonberg is a board-certified internist and completed her residency at Johns Hopkins Hospital.

Simon Harnest, M.Sc, has served as our Chief Investment Officer and Senior Vice President of Strategy since July 2021. Prior to joining us, Mr. Harnest held various positions, most recently as Chief Investment Officer and Senior Vice President of Strategy and Finance, at Cellectis Inc. from April 2014 to July 2021. Mr. Harnest also served as Vice President, Corporate Strategy and Finance at Calyxt from March 2016 to December 2019. Mr. Harnest received his B.Sc in economics from University of Westminster, Westminster Business School and his M.Sc in social studies from London School of Economics, London.

Alan Brooks, Ph.D., has served as our Senior Vice President of Preclinical since January 2023 and previously served as our Director of Preclinical and Vice President of Preclinical from November 2019 to January 2023. Prior to joining us, Dr. Brooks served as a principal scientist at Casebia Therapeutics from August 2017 to August 2019. From October 2007 to August 2017, Dr. Brooks held various positions at Bayer AG, including scientist, senior scientist and principal scientist. Dr. Brooks received his B.Sc in biological sciences from University of Leicester, UK and his Ph.D. in molecular and developmental biology from University of Warwick, UK. He completed his postdoctoral fellowship at the Gladstone Institute/University of California, San Francisco.

Christopher T. Brown, Ph.D., has served as our Vice President of Discovery since January 2023 and previously served as our Senior Bioinformatics Scientist, Director of Discovery and Senior Director of Discovery from September 2018 to December 2022. Prior to joining us, Dr. Brown conducted post-doctoral research at the University of California, Berkeley from January 2017 to August 2018. He received his B.Sc in microbiology from the University of Florida and his Ph.D. in plant and microbial biology from the University of California, Berkeley.

Simren Delaney, Ph.D., LLM, has served as our Vice President of Legal since February 2020 and previously served as our Chief of Staff from January 2022 to December 2022. Prior to joining us, Dr. Delaney was an associate at Wilson Sonsini Goodrich & Rosati from October 2016 to February 2020. Dr. Delaney received her B.Sc in science, LL.B. and Ph.D. in organic chemistry from Deakin University, and her LL.M. from University of California, College of the Law, San Francisco.

Michael Conway, MBA, CPA, has served as our Vice President of Finance since March 2022. Prior to joining us, Mr. Conway served as Senior Director of Financial Planning and Analysis and Vice President of Finance at Adamas Pharmaceuticals, Inc. from March 2016 to December 2021, where he was responsible for leading the accounting and financial planning and analysis functions. Mr. Conway received his BBA in management information systems from University of Notre Dame, his MBA from University of Michigan, Ross School of Business, and is a certified public accountant in the state of California.

Non-Employee Directors

Juergen Eckhardt, M.D., MBA, has served as our Chairman of the Board of Directors since September 2020. Dr. Eckhardt has served as Head of Leaps at Bayer AG since February 2019 and previously served as Head of Venture Investments from September 2016 to February 2019. He currently serves on the boards of Dewpoint Therapeutics, Khloris Biosciences, Oerth Bio, and a few other private biotechnology companies and foundations. Previously, Dr. Eckhardt served as a management consultant and Associate Partner at McKinsey & Co. and a member of McKinsey's Healthcare Leadership Team from 1994 to 2002. Dr. Eckhardt received his M.D. from the University of Basel and his MBA from INSEAD in Fontainebleau, France.

Our board of directors believes that Dr. Eckhardt is qualified to serve as a director because of his extensive experience in strategy, finance, leadership and drug development.

Sebastián Bernales, Ph.D., has served on our board of directors since December 2020 and previously served as a Director of Metagenomi, Inc. from September 2016 to April 2020. Dr. Bernales has been a General Partner at Humboldt Fund since February 2020 and has been a Venture Partner at DROIA Ventures since August 2020. He has served as the Chief Executive Officer of Praxis Biotech LLC since July 2016 and a member of Sake Holdings LLC since May 2020. Dr. Bernales is also the founder of Merken Biotech. Dr. Bernales is a member of the boards of directors of PhageLab, Botanical Solutions, Momentum, Vedra, Alesta, and a few other private biotechnology companies and foundations. Dr. Bernales currently serves as an advisor to NotCo, Levita Magnetics, and Leyden Labs. From 2007 to 2016, Dr. Bernales worked at Medivation Inc., culminating in the position of Vice President of Discovery Biology. He received his B.S. from Catholic University in Chile and his Ph.D. in cell biology at the University of California in San Francisco. He completed his postdoctoral training at the University of California in San Francisco.

Our board of directors believes that Dr. Bernales is qualified to serve as a director because of his significant experience in biotechnology industry.

Risa Stack, Ph.D., has served on our board of directors since April 2022. Dr. Stack has been a Partner at The Production Board since May 2022. Previously, Dr. Stack was a Venture Partner at RA Capital from September 2020 to March 2022. Dr. Stack was a founder and served as Chairperson of Menlo Microsystems from December 2016 to September 2018, and served as a General Manager at General Electric from January 2013 to September 2018. Dr. Stack was a Partner at Kleiner Perkins from June 2003 to December 2012. Before joining Kleiner Perkins, Dr. Stack was a Principal at JP Morgan Partners from September 1996 to May 2003. Dr. Stack currently serves on the Board of Directors of COPD Foundation. Dr. Stack received her B.S. in genetics and development from the University of Illinois and her Ph.D. in immunology from the University of Chicago. Dr. Stack was a member of the second class of Kauffman Fellows.

Our board of directors believes that Dr. Stack is qualified to serve as a director because of her extensive investment experience, knowledge of financial markets and expertise in personalized medicine, therapeutics and platform technology companies.

Willard Dere, M.D., has served on our board of directors since August 2021. Dr. Dere currently serves as Chief Advisor and Chief Medical Officer at Angitia since July 2022, and on the board of directors of BioMarin, Seres

and Mersana. He also serves on the Scientific Advisory Boards of Surrozen, AliveGen and Heranova Lifesciences Dr. Dere served as a Professor of Internal Medicine from November 2014 to July 2022 at the University of Utah School of Medicine, and is currently Professor Emeritus, a position he has held since July 2022. Dr. Dere also served as Associate Vice President for Research, Co-Director of The Center for Genomic Medicine and Co-Director of the Utah Clinical and Translational Science Institute at the University of Utah Health Sciences Center during this time period. Before joining the University of Utah, Dr. Dere held various positions at Amgen, Inc., including Senior Vice President of Global Development and Corporate, then International Chief Medical Officer, from July 2003 to October 2014. From 1989 to 2003, Dr. Dere held multiple positions in clinical research, and regulatory affairs and safety at Eli Lilly and Company. He was also an assistant professor from 1989 to 1999 and a clinical associate professor from 1999 to 2009 at the Indiana University School of Medicine. Dr. Dere received his B.A. in history, zoology and M.D. from the University of California, Davis; he completed his postdoctoral training at the University of Utah in internal medicine, and at the University of California, San Francisco in endocrinology and metabolism.

Our board of directors believes that Dr. Dere is qualified to serve as a director because of extensive experience in drug development, and as a board of directors member on several public companies.

Santhosh Palani, Ph.D., has served on our board of directors since January 2022. Dr. Palani is currently an investment partner at PFM Health Sciences since June 2020. He was a Principal at New Enterprise Associates from May 2018 to May 2020. From 2016 to 2018, Dr. Palani was a Vice President at Cowen and Company. He previously served as an Associate Director in Oncology Clinical Development at Pfizer from 2013 to 2016 and as a Scientist in Oncology Preclinical Development at Takeda Pharmaceuticals from 2012 to 2013. Dr. Palani currently serves on the Board of Directors of Turnstone Biologics. Dr. Palani received his B.S. and M.S. in chemical engineering from the University of Madras and Texas A&M University, respectively. Dr. Palani received his Ph.D. in Bioengineering from the University of Pennsylvania and completed his postdoctoral work in biochemistry and molecular biophysics at Columbia University. Dr. Palani is a CFA® Charterholder.

Our board of directors believes that Dr. Palani is qualified to serve as a director because of his strong financial background and significant industry experience in the fields of internal medicine and endocrinology.

Board Composition

Our board of managers currently consists of 6 members, each of whom is a member pursuant to the board composition provisions of our current certificate of incorporation and agreements with our stockholders, which agreements are described in the section of this prospectus entitled “Certain Relationships and Related Person Transactions.” These board composition provisions will terminate upon the closing of this offering. Upon the termination of these provisions, there will be no further contractual obligations regarding the election of our directors. Our nomination and corporate governance committee and our board of directors may therefore consider a broad range of factors relating to the qualifications and background of nominees. Our nomination and corporate governance committee’s and our board of directors’ priority in selecting board members is identification of persons who will further the interests of our stockholders through their established record of professional accomplishment, the ability to contribute positively to the collaborative culture among board members, knowledge of our business, understanding of the competitive landscape, professional and personal experiences and expertise relevant to our growth strategy. Our directors hold office until their successors have been elected and qualified or until their earlier resignation or removal. Our amended and restated certificate of incorporation and amended and restated bylaws that will become effective upon the closing of this offering also provide that our directors may be removed only for cause by the affirmative vote of the holders of at least two-thirds of the votes that all our stockholders would be entitled to cast in an annual election of directors, and that any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by vote of a majority of our directors then in office.

Staggered Board

In accordance with the terms of our amended and restated certificate of incorporation and our amended and restated bylaws that will become effective upon the closing of this offering, our board of directors will be divided into three staggered classes of directors and each director will be assigned to one of the three classes. At each annual meeting of the stockholders, one class of directors will be elected for a three-year term to succeed the directors of the same class whose terms are then expiring. The terms of the directors will expire upon the election and qualification of successor directors at the annual meeting of stockholders to be held during the years 2024 for Class I directors, 2025 for Class II directors and 2026 for Class III directors.

- Our Class I directors will be ;
- Our Class II directors will be ; and
- Our Class III directors will be .

Our amended and restated certificate of incorporation and amended and restated bylaws that will become effective upon the closing of this offering will provide that the number of our directors shall be fixed from time to time by a resolution of the majority of our board of directors.

The division of our board of directors into three classes with staggered three-year terms may delay or prevent stockholder efforts to effect a change of our management or a change in control.

Director Independence

We have applied to list our common stock on the Nasdaq Global Select Market. Under the Nasdaq listing rules, independent directors must comprise a majority of a listed company's board of directors within twelve months from the date of listing. In addition, the Nasdaq listing rules require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and governance committees be independent within twelve months from the date of listing. Audit committee members must also satisfy additional independence criteria, including those set forth in Rule 10A-3 under the Securities Exchange Act of 1934 (the "Exchange Act"), and compensation committee members must also satisfy the independence criteria set forth in Rule 10C-1 under the Exchange Act. Under Nasdaq listing rules, a director will only qualify as an "independent director" if, in the opinion of that company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director. In order to be considered independent for purposes of Rule 10A-3 under the Exchange Act, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors, or any other board committee: (i) accept, directly or indirectly, any consulting, advisory, or other compensatory fee from the listed company or any of its subsidiaries, other than compensation for board service; or (ii) be an affiliated person of the listed company or any of its subsidiaries. In order to be considered independent for purposes of Rule 10C-1, the board of directors must consider, for each member of a compensation committee of a listed company, all factors specifically relevant to determining whether a director has a relationship to such company which is material to that director's ability to be independent from management in connection with the duties of a compensation committee member, including, but not limited to: the source of compensation of the director, including any consulting advisory or other compensatory fee paid by such company to the director, and whether the director is affiliated with the company or any of its subsidiaries or affiliates.

In 2023, our board of directors undertook a review of the composition of our board of directors and its committees and the independence of each director. Based upon information requested from and provided by each director concerning his background, employment and affiliations, including family relationships, our board of directors has determined that all members of our board of directors, except , are independent

directors, including for purposes of Nasdaq and the SEC rules. In making that determination, our board of directors considered the relationships that each director has with us and all other facts and circumstances the board of directors deemed relevant in determining independence, including the potential deemed beneficial ownership of our capital stock by each director, including non-employee directors that are affiliated with certain of our major stockholders. Upon the completion of this offering, we expect that the composition and functioning of our board of directors and each of our committees will comply with all applicable requirements of Nasdaq and the rules and regulations of the SEC. There are no family relationships among any of our executive officers and directors.

We intend to adopt a policy, subject to and effective upon the effectiveness of the registration statement of which this prospectus forms a part, that outlines a process for our securityholders to send communications to the board of directors.

Board Committees

Our board of directors will establish an audit committee, a compensation committee and a nomination and corporate governance committee, each of which will operate pursuant to a charter to be adopted by our board of directors and will be effective upon the effectiveness of the registration statement of which this prospectus forms a part. We believe that the composition and functioning of all of our committees will comply with the applicable requirements of Nasdaq, the Sarbanes-Oxley Act of 2002 and SEC rules and regulations that will be applicable to us. We intend to comply with future requirements to the extent they become applicable to us.

Following the consummation of this offering, the full text of our audit committee charter, compensation committee charter and nomination and corporate governance committee charter will be posted on the investor relations portion of our website at https://www.metagenomi.co. We do not incorporate the information contained on, or accessible through, our corporate website into this prospectus, and you should not consider it a part of this prospectus.

Audit Committee

Upon the effectiveness of the registration statement of which this prospectus forms a part, our audit committee will consist of and will be chaired by . The functions of the audit committee will include:

- appointing, approving the compensation of, and assessing the independence of our independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;

- recommending based upon the audit committee's review and discussions with management and our independent registered public accounting firm whether our audited financial statements shall be included in our Annual Report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the audit committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and approving all such transactions; and
- reviewing quarterly earnings releases.

All members of our audit committee will meet the requirements for financial literacy under the applicable rules and regulations of the SEC and the Nasdaq listing rules. Our board of directors has determined that qualifies as an "audit committee financial expert" within the meaning of applicable SEC regulations. In making this determination, our board of directors considered the nature and scope of experience that has previously had with public reporting companies, including service as . Our board of directors has determined that all of the directors that will become members of our audit committee upon the effectiveness of the registration statement of which this prospectus forms a part satisfy the relevant independence requirements for service on the audit committee set forth in the rules of the SEC and the Nasdaq listing rules. Both our independent registered public accounting firm and management will periodically meet privately with our audit committee.

Compensation Committee

Upon the effectiveness of the registration statement of which this prospectus forms a part, our compensation committee will consist of , and will be chaired by . The functions of the compensation committee will include:

- annually reviewing and recommending to the board of directors the corporate goals and objectives relevant to the compensation of our Chief Executive Officer;
- evaluating the performance of our Chief Executive Officer in light of such corporate goals and objectives and based on such evaluation (i) reviewing and determining the cash compensation of our Chief Executive Officer and (ii) reviewing and approving grants and awards to our Chief Executive Officer under equity-based plans;
- reviewing and approving the compensation of our other executive officers;
- reviewing and establishing our overall management compensation, philosophy and policy;
- overseeing and administering our compensation and similar plans;
- evaluating and assessing potential and current compensation advisors in accordance with the independence standards identified in the applicable Nasdaq listing rules;
- reviewing and approving our policies and procedures for the grant of equity-based awards;
- reviewing and recommending to the board of directors the compensation of our directors;
- preparing our compensation committee report if and when required by SEC rules;
- reviewing and discussing annually with management our "Compensation Discussion and Analysis," if and when required, to be included in our annual proxy statement; and

- reviewing and approving the retention or termination of any consulting firm or outside advisor to assist in the evaluation of compensation matters.

Each member of our compensation committee will be a non-employee director, as defined in Rule 16b-3 promulgated under the Exchange Act, and an outside director, as defined pursuant to Section 162(m) of the Internal Revenue Code of 1986, as amended (the "Code").

Nominating and Corporate Governance Committee

Upon the effectiveness of the registration statement of which this prospectus forms a part, our nominating and corporate governance committee will consist of and will be chaired by . The functions of the nominating and corporate governance committee will include:

- developing and recommending to the board of directors criteria for board and committee membership;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- reviewing the composition of the board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise us;
- identifying individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board's committees;
- developing and recommending to the board of directors a code of business conduct and ethics and a set of corporate governance guidelines; and
- overseeing the evaluation of our board of directors and management.

Our board of directors may from time to time establish other committees.

Compensation Committee Interlocks and Insider Participation

None of the members of our compensation committee is, or has at any time during the prior three years been, one of our officers or employees. None of our executive officers currently serve, or have in the past fiscal year served, as a member of the board of directors or compensation committee of any entity that has one or more of its executive officers serving as a member of our board of directors or our compensation committee.

Code of Business Conduct and Ethics

Our board of directors intends to adopt, subject to and effective upon the effectiveness of the registration statement of which this prospectus forms a part, a Code of Business Conduct and Ethics in connection with this offering. The Code of Business Conduct and Ethics will apply to all of our employees, officers (including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions), agents and representatives, including directors and consultants.

We intend to disclose future amendments to certain provisions of our Code of Business Conduct and Ethics and our Code of Ethics on our website identified below. Upon the completion of this offering, the full text of our Code of Business Conduct and Ethics and our Code of Ethics will be posted on our website at https://www. Metagenomi.co. The inclusion of our website address in this prospectus does not include or incorporate by reference the information on our website into this prospectus, and you should not consider that information a part of this prospectus.

Limitations on Liability and Indemnification Agreements

As permitted by Delaware law, provisions in our amended and restated certificate of incorporation and amended and restated bylaws, both of which will become effective upon the closing of this offering, limit or eliminate the personal liability of directors for a breach of their fiduciary duty of care as a director. The duty of care generally requires that, when acting on behalf of the corporation, a director exercise an informed business judgment based on all material information reasonably available to him or her. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any act related to unlawful stock repurchases, redemptions or other distributions or payments of dividends; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not limit or eliminate our rights or any stockholder's rights to seek non-monetary relief, such as injunctive relief or rescission. These provisions will not alter a director's liability under other laws, such as the federal securities laws or other state or federal laws. Our amended and restated certificate of incorporation that will become effective upon the closing of this offering also authorizes us to indemnify our officers, directors and other agents to the fullest extent permitted under Delaware law.

As permitted by Delaware law, our amended and restated bylaws to be effective upon the consummation of this offering will provide that:

- we will indemnify our directors, officers, employees and other agents to the fullest extent permitted by law;
- we must advance expenses to our directors and officers, and may advance expenses to our employees and other agents, in connection with a legal proceeding to the fullest extent permitted by law; and
- the rights provided in our amended and restated bylaws are not exclusive.

If Delaware law is amended to authorize corporate action further eliminating or limiting the personal liability of a director or officer, then the liability of our directors or officers will be so eliminated or limited to the fullest extent permitted by Delaware law, as so amended. Our amended and restated bylaws will also permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in connection with their services to us, regardless of whether our amended and restated bylaws permit such indemnification. We have obtained such insurance.

In addition to the indemnification that will be provided for in our amended and restated certificate of incorporation and amended and restated bylaws, we plan to enter into separate indemnification agreements with each of our directors and executive officers, which may be broader than the specific indemnification provisions contained in the Delaware General Corporation Law. These indemnification agreements may require us, among other things, to indemnify our directors and executive officers for some expenses, including attorneys' fees, expenses, judgments, fines and settlement amounts incurred by a director or executive officer in any action or proceeding arising out of his service as one of our directors or executive officers or any other company or enterprise to which the person provides services at our request. We believe that these provisions and agreements are necessary to attract and retain qualified individuals to serve as directors and executive officers.

This description of the indemnification provisions of our amended and restated certificate of incorporation, our amended and restated bylaws and our indemnification agreements is qualified in its entirety by reference to these documents, each of which is attached as an exhibit to the registration statement of which this prospectus forms a part.

Insofar as indemnification for liabilities arising under the Securities Act, may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable.

There is no pending litigation or proceeding naming any of our directors or officers as to which indemnification is being sought, nor are we aware of any pending or threatened litigation that may result in claims for indemnification by any director or officer.

EXECUTIVE COMPENSATION

The following discussion contains forward looking statements that are based on our current plans, considerations, expectations and determinations regarding our future compensation programs. The actual amount and form of compensation and the compensation policies and practices that we adopt in the future may differ materially from currently planned programs as summarized in this discussion.

As an emerging growth company, we have opted to comply with the executive compensation disclosure rules applicable to "smaller reporting companies," as such term is defined in the rules promulgated under the Securities Act. The compensation provided to our named executive officers for the fiscal year ended December 31, 2022 is detailed in the 2022 Summary Compensation Table and accompanying footnotes and narrative that follow. Our named executive officers for the fiscal year ended December 31, 2022 are:

- Brian C. Thomas, Ph.D., our Chief Executive Officer;
- Jian Irish, Ph.D., MBA, our President and Chief Operating Officer; and
- Simon Harnest, MSc, our Chief Investment Officer.

To date, the compensation of our named executive officers has consisted of a combination of base salary, cash bonuses and equity awards in the form of profits interests, as described below. Our named executive officers, like all of our full-time employees, are eligible to participate in our health and welfare benefit plans. As we transition from a private company to a publicly traded company, we intend to evaluate our compensation values and philosophy and compensation plans and arrangements as circumstances require.

2022 Summary Compensation Table

The following table shows the total compensation earned by, or paid to, our named executive officers for services rendered to us in all capacities during the fiscal year ended December 31, 2022.

Name and Principal Position	Year	Salary ($)	Bonus(1) ($)	Stock Awards(2) ($)	Non-Equity Incentive Plan Compensation(3) ($)	All Other Compensation(4) ($)	Total ($)
Brian C. Thomas, Ph.D.							
Chief Executive Officer	2022	500,000	100,000	1,223,129	318,250	15,250	2,156,629
Jian Irish, Ph.D., MBA							
President and Chief Operating Officer	2022	450,000	52,000	313,084	260,354	8,990	1,084,428
Simon Harnest, MSc							
Chief Investment Officer	2022	340,500		113,054	153,007	—	606,561

(1) The amounts reported in this column reflect one time special bonuses paid to Mr. Thomas and Ms. Irish for performance during fiscal year ended December 31, 2022.

(2) The amounts reported in this column represent the aggregate grant date fair value of profits interests granted to the named executive officers during 2022, as calculated in accordance with Financial Accounting Standards Board ("FASB"), Accounting Standards Codification ("ASC"), Topic 718. Such grant date value does not take into account any estimated forfeitures related to service-based vesting conditions. The assumptions used in the grant date fair value of the awards in this column are described in Note 13 – Profits Interests Plan to our consolidated financial statements included elsewhere in this prospectus. These awards are described in more detail under "Narrative Disclosure to Summary Compensation Table – Equity-Based Compensation" below.

(3) The amounts reported represent annual bonuses under our annual cash bonus program based on achievement of company performance and individual performance during the year ended December 31, 2022. For more information on these bonuses, see description of the annual performance bonuses under the section titled "Narrative Disclosure to Summary Compensation Table – Annual Cash Bonuses" below.

(4) The amounts reported reflect an employer matching contribution on the employee's behalf under our 401(k) plan.

Narrative Disclosure to Summary Compensation Table

2022 Base Salaries

Our named executive officers each receive a base salary to compensate them for services rendered to our Company. The base salary payable to each named executive officer is intended to provide a fixed component of compensation reflecting the executive's skill set, experience, role and responsibilities. Base salaries may be adjusted from time to time to realign salaries with market levels after taking into account individual responsibilities, performance and experience. Mr. Harnest's base salary was adjusted effective as of March 31, 2022 from $335,000 to $341,600. The base salaries for Dr. Thomas and Dr. Irish were not adjusted during the calendar year 2022. As of December 31, 2022, the base salaries for Dr. Thomas, Dr. Irish and Mr. Harnest were $500,000, $450,000 and $341,600, respectively.

2022 Cash Bonuses

For the fiscal year ended December 31, 2022, each of the named executive officers was eligible to earn an annual cash bonus determined by our board of directors in its sole discretion, based on achievement of certain individual and corporate performance goals, relating primarily to research and development goals, clinical milestones, business development and organizational goals. The target annual bonus for each of our named executive officers for the fiscal year ended December 31, 2022 was equal to the percentage of the executive's respective annual base salary specified below:

Name	Target Bonus Percentage
Brian C. Thomas	50%
Jian Irish	45%
Simon Harnest	35%

With respect to the fiscal year ended December 31, 2022, our compensation committee approved a payout of cash bonuses in an amount of 127% of target for Mr. Thomas, 129% for Ms. Irish and 128% for Mr. Harnest.

Equity-Based Compensation

Although we do not yet have a formal policy with respect to the grant of equity incentive awards to our executive officers, we believe that equity grants provide our executives with a strong link to our long-term performance, create an ownership culture and help to align the interests of our executives and our unitholders. We have granted our named executive officers profits interests under our 2019 Equity Incentive Plan (the "2019 Plan"). These profits interests are subject to time-based vesting conditions and are intended to be treated as "profits interests" for U.S. federal income tax purposes.

In connection with the Reorganization, profits interests will be exchanged for shares of common stock and restricted common stock of Metagenomi, Inc.

For additional information regarding outstanding equity awards held by our named executive officers as of December 31, 2022, see the "*Outstanding Equity Awards at 2022 Fiscal Year End*" table below.

Perquisites/Personal Benefits

Perquisites or other personal benefits are not a significant component of our executive compensation program. Accordingly, we do not provide significant perquisites or other personal benefits to our executive officers, including our named executive officers.

401(k) Plan

We maintain a retirement savings plan (“401(k) plan”) that is intended to qualify for favorable tax treatment under Section 401(a) of the Code, and contains a cash or deferred feature that is intended to meet the requirements of Section 401(k) of the Code. U.S. employees are generally eligible to participate in the 401(k) plan, subject to certain criteria. Participants may make pre-tax and certain after-tax (Roth) salary deferral contributions to the plan from their eligible earnings up to the statutorily prescribed annual limit under the Code. Participants who are 50 years of age or older may contribute additional amounts based on the statutory limits for catch-up contributions. Participant contributions are held in trust as required by law. We provide employer matching contributions of 100% on the first 5% of participant’s compensation contributed to our 401(k) plan.

Outstanding Equity Awards at 2022 Fiscal Year End

The following table lists all outstanding equity awards held by our named executive officers as of December 31, 2022.

			Stock Awards(1)			
Name	Grant Date	Vesting Commencement Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)(2)	Equity Incentive Plan awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan awards: Market Value of Unearned Shares, Units or Other Rights That Have Not Vested ($)
Brian C. Thomas, Ph.D.(3)	11/2/21	11/1/21	92,223			
Chief Executive Officer	5/26/22	1/21/22	649,139			
Jian Irish, Ph.D., MBA(4)	1/26/21	1/5/21	250,316			
President and Chief	11/2/21	11/1/21	322,776			
Operating Officer	5/26/22	1/21/22	166,160			
Simon Harnest, MSc	8/30/21	7/6/21	102,103			
Chief Investment Officer	5/26/22	1/21/22	60,000			

(1) All awards in this table consist of profits interests granted under the 2019 Plan that are intended to qualify as "profits interests" for U.S. tax purposes. They do not require the payment of an exercise price and will only obtain value as value of the underlying security rises above its grant date value, which is referred to as the "Threshold Amount." The profits interests vest as follows: 25% vest on the one year anniversary of the vesting commencement date; and then the remaining 75% of the total profits interests vest in substantially equal amounts on each monthly anniversary of the vesting commencement date thereafter, until fully vested on the fourth anniversary of the vesting commencement date, based upon the participant's continued service on each applicable vesting date.

(2) Represents the fair market value of profits interests that were unvested as of December 31, 2022. The fair market value assumes an initial public offering prior of $ per share, which is the estimated midpoint of the price range set forth on the cover page of this prospectus.

(3) Awards held by Dr. Thomas are subject to certain acceleration provisions, as summarized below under "Employment Arrangements in Place Prior to the Offering for Named Executive Officers."

(4) Awards held by Dr. Irish are subject to certain acceleration provisions, as summarized below under "Employment Arrangements in Place Prior to the Offering for Named Executive Officers."

Executive Compensation Arrangements

We have entered into offer letters and/or employment agreements with each of our named executive officers. Each offer letter or employment agreement provides for "at-will" employment and the compensation and benefits described below.

Employment Arrangements in Place Prior to The Offering for Named Executive Officers

Brian C. Thomas

On March 20, 2023, the Company executed an executive employment agreement with Dr. Thomas (the "Thomas Employment Agreement"), for the position of Chief Executive Officer. The Thomas Employment Agreement provides for Dr. Thomas's at-will employment. Dr. Thomas's current base salary is $520,000 and he is eligible to receive an annual bonus with an annual target amount of 50% of his annual base salary. Dr. Thomas is eligible to participate in the employee benefit plans available to our employees, subject to the terms of such plans.

Upon termination of Dr. Thomas's employment by us without Cause or his resignation for Good Reason outside of the Change in Control Period, as such terms are defined in the Thomas Employment Agreement, subject to (i) Dr. Thomas resigning from all positions, (ii) signing a general release of claims in favor of the Company and (iii) not breaching any of the post-employment covenants and contractual obligations to the Company, Dr. Thomas shall be entitled to (A) a lump sum payment equal to nine (9) months of his then current base salary and pro-rated target bonus, based on the number of days he was employed in such year, divided by 365, payable within sixty (60) days following his termination, and (B) if Dr. Thomas was participating in the Company's group health plan immediately prior to the termination date, a monthly cash payment for nine (9) months in an amount equal to Dr. Thomas's and his eligible dependents monthly COBRA premium. In addition, and subject to the same conditions, upon a termination by us without Cause or his resignation for Good Reason during the Change in Control Period, he shall be entitled to (A) a lump sum payment equal to twelve (12) months of his then current base salary and pro-rated target bonus, based on the number of days he was employed in such year, divided by 365, payable within sixty (60) days following his termination, (B) if Dr. Thomas was participating in the Company's group health plan immediately prior to the termination date, a monthly cash payment for twelve (12) months in an amount equal to Dr. Thomas's and his eligible dependents monthly COBRA premium, and (C) full acceleration of his then outstanding and unvested equity awards.

Jian Irish

On January 19, 2021, the Company executed an offer letter with Dr. Irish (the "Irish Offer Letter"), for the position of Chief Operations Officer. The Irish Offer Letter provides for Dr. Irish's at-will employment. Dr. Irish was promoted to President and Chief Operating Officer effective November 1, 2021. Dr. Irish's current base salary is $468,000 and she is eligible to receive an annual bonus with an annual target amount of 45% of her annual salary. Dr. Irish is eligible to participate in the employee benefit plans available to our employees, subject to the terms of such plans. The Irish Offer Letter provides for Dr. Irish's eligibility to receive a grant of profits interests under the 2019 Plan, which will be subject to full acceleration upon the occurrence of a Change of Control (as defined in the Irish Offer Letter).

Upon a termination of Dr. Irish's agreement by us without Cause, or her resignation for Good Reason, as such terms are defined in the Irish Offer Letter, she will be eligible to receive six (6) months of base salary, pro-rated annual bonus, and six (6) months vesting acceleration.

Dr. Irish entered into an Employee Invention Assignment and Confidentiality Agreement that contains various restrictive covenants, including non-solicitation provisions that apply during her employment and for a period of twelve months thereafter.

Simon Harnest

On June 10, 2021, the Company executed an offer letter with Mr. Harnest (the "Harnest Offer Letter"), for the position of Chief Investment Officer and Senior Vice President of Strategy. The Harnest Offer Letter provides for Mr. Harnest's at-will employment. Mr. Harnest's current base salary is $365,512 and he is eligible to receive an annual bonus with an annual target amount of 35% of his base salary. Mr. Harnest is eligible to participate in the employee benefit plans available to our employees, subject to the terms of such plans.

Mr. Harnest entered into an Employee Invention Assignment and Confidentiality Agreement that contains various restrictive covenants, including non-solicitation provisions that apply during his employment and for a period of twelve months thereafter.

Employee Benefit and Equity Compensation Plans

2019 Equity Incentive Plan

The 2019 Plan was initially approved by the board of managers of the Company in March 2019. The 2019 Plan provided for the grant of profits interests, restricted common units, options to purchase common units and restricted equity units to selected employees, officers, directors and consultants of the Company. The total number of common units available for grant and issuance under the 2019 Plan is 14,604,165 common units. Common units that are (i) cancelled, forfeited, settled in cash, used to pay withholding obligations or that expire by their terms at any time and (ii) that are reacquired by the Company pursuant to a right of first refusal or repurchase by the Company, will again become available for issuance under the 2019 Plan. Our board of managers administers the 2019 Plan and has the authority to take any action necessary or advisable for the administration of the 2019 Plan. Our board has the right and discretion to grant awards under the 2019 Plan to participants.

Common units designated as profits interests by the board of managers are intended to meet the definition of a "profits interests" set forth in IRS Revenue Procedures 93-27 and 2001-43. Accordingly, such profits interests do not give the holder a share of the proceeds if the Company's assets were sold at fair market value and the proceeds of such disposition were distributed in a complete liquidation of the Company immediately after the date of grant, but give the holder a right to share in the appreciation in the value of a common unit from the date of receipt to the future, as determined by the applicable provisions of the Company's operating agreement in effect immediately prior to the Reorganization.

Upon a liquidation event, as defined in the 2019 Plan, the board of managers may in its sole discretion, cancel all outstanding and unexercised awards, including profits interests and other unvested awards, in each case, without consideration, as of the date of such liquidation event.

The 2019 Plan will terminate automatically ten (10) years after the later of (i) the date when the board adopted the 2019 Plan and (ii) the date when the board approved the most recent increase in the number of common units reserved under the 2019 Plan, which was also subsequently approved by the members of the company. The board of managers may amend, suspend or terminate the 2019 Plan at any time and for any reason; provided, that any amendment that would materially adversely impact an award shall only be effective with respect to such award if the holder thereof so consents prior to the date of the amendment.

As of , 2023, profits interests have been issued under the 2019 Plan. See “Reorganization.”

2023 Stock Option and Incentive Plan

Our 2023 Plan was adopted by our board of directors on , 2023, approved by our stockholders on , 2023 and will become effective upon the date immediately preceding the date on which the registration statement of which this prospectus is part is declared effective by the SEC. The 2023 Plan will replace the 2019 Plan as our board of directors has determined not to make additional awards under the 2019 Plan following the closing of our initial public offering. The 2023 Plan allows us to make equity-based and cash-based incentive awards to our officers, employees, directors and consultants.

We have initially reserved shares of our common stock for the issuance of awards under the 2023 Plan (the “Initial Limit”). The 2023 Plan provides that the number of shares reserved and available for issuance under the 2023 Plan will automatically increase on January 1, 2024 and each January 1 thereafter, by percent of the outstanding number of shares of our common stock on the immediately preceding December 31 or such lesser number of shares as determined by our compensation committee (the “Annual Increase”). The number of shares reserved under the 2023 Plan is subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

The shares we issue under the 2023 Plan will be authorized but unissued shares or shares that we reacquire. The shares of common stock underlying any awards under the 2023 Plan and the 2019 Plan that are forfeited, cancelled, held back upon exercise or settlement of an award to satisfy the exercise price or tax withholding, reacquired by us prior to vesting, satisfied without the issuance of stock, expire or are otherwise terminated (other than by exercise) will be added back to the shares of common stock available for issuance under the 2023 Plan.

The maximum number of shares of common stock that may be issued in the form of incentive stock options shall not exceed the Initial Limit, cumulatively increased on January 1, 2024 and on each January 1 thereafter by the lesser of the Annual Increase for such year or shares of common stock.

The grant date fair value of all awards made under our 2023 Plan and all other cash compensation paid by us to any non-employee director in any calendar year for services as a non-employee director shall not exceed $; provided, however, that such amount shall be $ for the calendar year in which the applicable non-employee director is initially elected or appointed to the board of directors.

The 2023 Plan will be administered by our compensation committee. Our compensation committee has the full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted and the number of shares subject to such awards, to make any combination of awards to participants, to accelerate at any time the exercisability or vesting of any award and to determine the specific terms and conditions of each award, subject to the provisions of the 2023 Plan. Persons eligible to participate in the 2023 Plan will be those full or part-time officers, employees, non-employee directors and consultants as selected from time to time by our compensation committee in its discretion.

The 2023 Plan permits the granting of both options to purchase common stock intended to qualify as incentive stock options under Section 422 of the Code and options that do not so qualify. The option exercise price of each option will be determined by our compensation committee but generally may not be less than 100 percent of the fair market value of our common stock on the date of grant unless the option (i) is granted pursuant to a transaction described in, and in a manner consistent with Section 424(a) of the Code, (ii) is granted to an individual who is not subject to U.S. income tax or (iii) complies with Section 409A of the Code. The term of each

option will be fixed by our compensation committee and may not exceed 10 years from the date of grant. Our compensation committee will determine at what time or times each option may be exercised.

Our compensation committee may award stock appreciation rights under the 2023 Plan subject to such conditions and restrictions as it may determine. Stock appreciation rights entitle the recipient to shares of common stock, or cash, equal to the value of the appreciation in our stock price over the exercise price. The exercise price of each stock appreciation right will be determined by our compensation committee but generally may not be less than 100 percent of the fair market value of our common stock on the date of grant unless the stock appreciation right (i) is granted pursuant to a transaction described in, and in a manner consistent with Section 424(a) of the Code, (ii) is granted to an individual who is not subject to U.S. income tax or (iii) complies with Section 409A of the Code. The term of each stock appreciation right will be fixed by our compensation committee and may not exceed 10 years from the date of grant. Our compensation committee will determine at what time or times each stock appreciation right may be exercised.

Our compensation committee may award restricted shares of common stock and restricted stock units to participants subject to such conditions and restrictions as it may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with us through a specified vesting period. Our compensation committee may also grant shares of common stock that are free from any restrictions under the 2023 Plan. Unrestricted stock may be granted to participants in recognition of past services or for other valid consideration and may be issued in lieu of cash compensation due to such participant.

Our compensation committee may grant dividend equivalent rights to participants that entitle the recipient to receive credits for dividends that would be paid if the recipient had held a specified number of shares of common stock.

Our compensation committee may grant cash bonuses under the 2023 Plan to participants, subject to the achievement of certain performance goals.

The 2023 Plan provides that upon the effectiveness of a “sale event,” as defined in the 2023 Plan, an acquirer or successor entity may assume, continue or substitute outstanding awards under the 2023 Plan. To the extent that awards granted under the 2023 Plan are not assumed or continued or substituted by the successor entity, upon the effective time of the sale event, such awards shall terminate. In the event of such termination, (i) individuals holding options and stock appreciation rights will be permitted to exercise such options and stock appreciation rights (to the extent exercisable) within a specified period of time prior to the sale event or (ii) we may make or provide for a payment, in cash or in kind, to participants holding vested and exercisable options and stock appreciation rights equal (A) the difference between the per share cash consideration payable to stockholders in the sale event and the per share exercise price of the options or stock appreciation rights, multiplied by (B) the number of shares subject to such outstanding vested and exercisable options and stock appreciation rights (to the extent exercisable at prices not in excess of the per share cash consideration), and we may make or provide for a payment, in cash or in kind, to participants holding other vested awards equal to the per share cash consideration multiplied by the number of vested shares underlying such awards.

Our board of directors may amend or discontinue the 2023 Plan and our compensation committee may amend or cancel outstanding awards for purposes of satisfying changes in law or any other lawful purpose, but no such action may adversely affect rights under an award without the holder’s consent. Certain amendments to the 2023 Plan require the approval of our stockholders. The administrator of the 2023 Plan is specifically authorized to exercise its discretion to reduce the exercise price of outstanding stock options and stock appreciation rights or effect the repricing of such awards through cancellation and re-grants without stockholder consent. No awards may be granted under the 2023 Plan after the date that is 10 years from the effective date of the 2023 Plan. No awards under the 2023 Plan have been made prior to the date of this prospectus.

2023 Employee Stock Purchase Plan

Our ESPP was adopted by our board of directors on , 2023, approved by our stockholders on , 2023 and will become effective on the date immediately preceding the date on which the registration statement of which this prospectus forms a part is declared effective by the SEC. The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code. The ESPP initially reserves and authorizes the issuance of up to a total of shares of our common stock to participating employees. The ESPP provides that the number of shares reserved and available for issuance will automatically increase on January 1, 2024 and each January 1 thereafter through January 1, 2033, by the least of (i) shares of common stock, (ii) percent of the outstanding number of shares of common stock on the immediately preceding December 31, or (iii) such lesser number of shares of common stock as determined by the administrator of the ESPP. The number of shares reserved under the ESPP is subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

All employees who are customarily employed by us or one of our designated subsidiaries for more than hours per week and who we have employed for at least days are eligible to participate in the ESPP. However, any employee who owns 5 percent or more of the total combined voting power or value of all classes of our stock will not be eligible to purchase shares of common stock under the ESPP.

We may make one or more offerings each year to our employees to purchase shares under the ESPP. Offerings will usually begin on each and and will continue for six-month periods, referred to as offering periods. Each eligible employee may elect to participate in any offering by submitting an enrollment form at least 15 business days before the applicable offering date

Each employee who is a participant in the ESPP may purchase shares of our common stock by authorizing payroll deductions of up to 15 percent of his or her eligible compensation during an offering period. Unless the participating employee has previously withdrawn from the offering, his or her accumulated payroll deductions will be used to purchase shares of our common stock on the last business day of the offering period at a price equal to 85 percent of the fair market value of the shares of our common stock on the first business day or the last business day of the offering period, whichever is lower, provided that no more than a number of shares of common stock determined by dividing $25,000 by the fair market value of our common stock on the offering date of the offering (or a lesser number as established by the plan administrator in advance of the offering period) may be purchased by any one employee during each offering period. Under applicable tax rules, an employee may purchase no more than $25,000 worth of shares of our common stock, valued at the start of the purchase period, under the ESPP in any calendar year.

The accumulated payroll deductions of any employee who is not a participant on the last day of an offering period will be refunded. An employee's rights under the ESPP terminate upon voluntary withdrawal from the plan or when the employee ceases employment with us for any reason.

The ESPP may be terminated or amended by our board of directors at any time. An amendment that increases the number of shares of our common stock authorized under the ESPP and certain other amendments require the approval of our stockholders.

Senior Executive Cash Incentive Bonus Plan

On , 2023 our board of directors adopted the Senior Executive Cash Incentive Bonus Plan (the "Bonus Plan"). The Bonus Plan provides for annual cash bonus payments based upon the attainment of Company and individual performance targets established by our compensation committee. The payment targets will be related to financial and operational measures or objectives with respect to our Company (the "Corporate Performance Goals"), as well as individual performance objectives.

Our compensation committee may select Corporate Performance Goals from among the following: cash flow (including, but not limited to, operating cash flow and free cash flow); revenue; corporate revenue; earnings before interest, taxes, depreciation, and amortization; net income (loss) (either before or after interest, taxes, depreciation, and/or amortization); changes in the market price of our common stock; economic value-added; acquisitions or strategic transactions, including collaborations, joint ventures, or promotion arrangements; operating income (loss); return on capital assets, equity, or investment; stockholder returns; sales; net sales; return on sales; gross or net profit levels; productivity; expense efficiency; margins; operating efficiency; customer satisfaction; working capital; earnings (loss) per share of our common stock; bookings, new bookings, or renewals; sales or market shares; number of customers, number of new customers, or customer references; operating income and/or net annual recurring revenue; or any other performance goal as selected by the compensation committee, any of which may be measured in absolute terms, as compared to any incremental increase, in terms of growth, as compared to results of a peer group, against the market as a whole, compared to applicable market indices, and/or measured on a pre-tax or post-tax basis.

Each executive officer who is selected to participate in the Bonus Plan will have a target bonus opportunity set for each performance period. The bonus formulas will be adopted in each performance period by the compensation committee and communicated to each executive. The Corporate Performance Goals will be measured at the end of each performance period after our financial reports have been published or such other appropriate time as the compensation committee determines. If the Corporate Performance Goals and individual performance objectives are met, payments will be made as soon as practicable following the end of each performance period, but no later than 74 days after the end of the fiscal year in which such performance period ends. Subject to the rights contained in any agreement between the executive officer and us, an executive officer must be employed by us on the bonus payment date to be eligible to receive a bonus payment. The Bonus Plan also permits the compensation committee to approve additional bonuses to executive officers in its sole discretion.

DIRECTOR COMPENSATION

2022 Director Compensation Table

The following table presents the total compensation paid by the Company to non-employee members of our board of managers during the fiscal year ended December 31, 2022. Other than as set forth in the table and described more fully below, we did not pay any compensation, make any equity awards or non-equity awards to, or pay any other compensation to any of the members of our board of managers in 2022 for their services as members of the board of managers. Dr. Thomas, our Chief Executive Officer, does not receive any compensation from the Company for his service on our board of managers. See the section titled "Executive Compensation" for more information on the compensation paid to or earned by Dr. Thomas as an employee for year ended December 31, 2022.

Name	Fees Earned or Paid in Cash ($)	Total ($)
Sebastián Bernales	—	
Willard H. Dere(1)(2)	30,000	
Juergen Eckhardt	—	
Santosh Palani	—	
Risa Stack(1)	—	

(1) Dr. Dere and Dr. Stack each held 94,856 profits interests granted under the 2019 Plan as of December 31, 2022. None of our other non-employee directors held any equity awards as of December 31, 2022.
(2) We entered into an Independent Manager Offer Letter with Dr. Dere, pursuant to which he is eligible to receive cash compensation of $30,000 for each calendar year for his services to our board of managers.

Non-Employee Director Compensation Policy

In connection with this offering, we intend to adopt a new non-employee director compensation policy that will become effective as of the completion of this offering and will be designed to enable us to attract and retain, on a long term basis, highly qualified non-employee directors.

Under the policy, our non-employee directors will be eligible to receive cash retainers (which will be payable quarterly in arrears and prorated for partial years of service) and equity awards as set forth below:

Annual Retainer for Board Membership	
for general availability and participation in meetings and conference calls of our Board of Directors	$
Additional Annual Retainer for Committee Membership	
Audit Committee Chairperson:	$
Audit Committee member (other than Chairperson):	$
Compensation Committee Chairperson:	$
Compensation Committee member (other than Chairperson):	$
Nominating and Corporate Governance Committee Chairperson:	$
Nominating and Corporate Governance Committee member (other than Chairperson):	$
Science & Technology Committee Chairperson:	$
Science & Technology Committee member (other than Chairperson):	$

Additional Retainer for Non-Executive Chairperson of the Board:

In addition, our policy will provide that, upon initial election or appointment to our board of directors, each new non-employee director will be granted a one-time grant of a non-statutory stock option to purchase shares

of our common stock equivalent to $ in value on the date of such director's election or appointment to the board of directors (the "Director Initial Grant"). The Director Initial Grant will vest , subject to the non-employee director's continued services to the us. On the date of each annual meeting of stockholders of our company following the completion of this offering, each non-employee director who will continue as a non-employee director following such meeting will be granted an annual award of a non-statutory stock option to purchase shares of common stock equivalent to $ in value (the "Director Annual Grant"). The Director Annual Grant will vest in full on the earlier of the one-year anniversary of the grant date or on the date of our next annual meeting of stockholders, subject to the non-employee director's continued services to us. Such awards are subject to full acceleration vesting upon the sale of our company.

The aggregate amount of compensation, including both equity compensation and cash compensation, paid to any non-employee director for service as a non-employee director in a calendar year period will not exceed $ in the first calendar year such individual becomes a non-employee director and $ in any other calendar year.

We will reimburse all reasonable out-of-pocket expenses incurred by directors for their attendance at meetings of our board of directors or any committee thereof.

Employee directors will receive no additional compensation for their service as a director.

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

The following is a description of transactions or series of transactions since January 1, 2020, to which we were or will be a party, in which:

- the amount involved in the transaction exceeds, or will exceed, $120,000; and
- in which any of our executive officers, directors or holder of five percent or more of any class of our capital stock, including their immediate family members or affiliated entities, had or will have a direct or indirect material interest.

Compensation arrangements for our named executive officers and our directors are described elsewhere in this prospectus under "Executive Compensation" and "Director Compensation."

Series A-4 and Series A-5 Preferred Unit Financings

From 2020 to 2021, we sold an aggregate of 9,861,297 Series A-4 and Series A-5 preferred units in multiple closings, consisting of (i) 8,280,360 Series A-4 preferred units sold at a purchase price of $4.84875 per unit for an aggregate amount of $40.1 million and (ii) 1,580,937 Series A-5 preferred units sold at a purchase price of $6.32536 per unit for an aggregate amount of $10.0 million, for total aggregate proceeds of $50.1 million. The following table summarizes purchases of our Series A-4 and Series A-5 preferred units as described above by related persons:

Stockholder	Numbers of Series A-4/Series A-5 preferred units	Total purchase price
Bayer HealthCare LLC(1)	2,062,387	$9,999,998.97
Humboldt Fund I, LP(2)	2,062,387	$9,999,998.97
Entities affiliated with RA Capital(3)	1,580,937	$9,999,995.67
Sake Holdings LLC(4)	929,067	$4,504,813.62
Entities affiliated with Sozo Ventures(5)	710,907	$3,447,010.33

(1) Juergen Eckhardt, a manager on our board of managers, is an affiliate of Bayer Consumer Care AG, which is an affiliate of Bayer HealthCare LLC. Bayer HealthCare LLC holds more than 5 percent of our voting securities.
(2) Sebastián Bernales, a manager on our board of managers, is an affiliate of Humboldt Fund. Humboldt Fund I, LP is an affiliated fund of Humboldt Fund. Humboldt Fund I, LP holds more than 5 percent of our voting securities.
(3) Represents 1,343,796 Series A-5 preferred units purchased by RA Capital Healthcare Fund, L.P. and 237,141 Series A-5 preferred units purchased by RA Capital Nexus Fund II, L.P. Entities affiliated with RA Capital collectively hold more than 5 percent of our voting securities.
(4) Sebastián Bernales, a manager on our board of managers, is an affiliate of Sake Holdings LLC. Sake Holdings LLC holds more than 5 percent of our voting securities.
(5) Represents 319,908 Series A-4 preferred units purchased by Sozo Ventures – Truebridge Fund II, L.P. and 390,999 Series A-4 preferred units purchased by Sozo Ventures II-S, L.P. Entities affiliated with Sozo Ventures collectively hold more than 5 percent of our voting securities.

Series B Preferred Unit Financing

In 2022 and 2023, we sold an aggregate of 22,162,743 Series B and Series B-1 preferred units in multiple closings, consisting of (i) 15,054,263 Series B preferred units, which includes (a) 12,446,876 Series B preferred units sold at a purchase price of $11.64951 per unit and (b) 2,607,387 Series B preferred units which converted pursuant to a promissory note with a principal amount of $30.0 million and accrued interest of $0.4 million

between the Company and ModernaTx, Inc., for an aggregate amount of $175.4 million and (ii) 7,108,480 Series B-1 preferred units sold at a purchase price of $14.06770 per unit for an aggregate amount of $100.0 million, for total aggregate proceeds of $275.4 million. The following table summarizes purchases of our Series B and Series B-1 preferred units by related persons:

Stockholder	Numbers of Series B/Series B-1 preferred units	Total purchase price
ModernaTX, Inc.(1)	2,982,800	$35,655,978.39
Bayer HealthCare LLC	1,920,757	$24,529,689.59
Humboldt Fund I, LP(3)	1,250,532	$14,825,929.39
Entities affiliated with RA Capital(4)	1,000,575	$12,000,002.54
Entities affiliated with Sozo Ventures(5)	816,063	$10,442,237.49

(1) Represents 2,607,387 Series B preferred units and 375,413 Series B-1 preferred units. ModernaTX, Inc. holds more than 5 percent of our voting securities.
(2) Represents 1,030,086 Series B preferred units and 890,671 Series B-1 preferred units. Juergen Eckhardt, a manager on our board of managers, is an affiliate of Bayer Consumer Care AG, which is an affiliate of Bayer HealthCare LLC. Bayer HealthCare LLC holds more than 5 percent of our voting securities.
(3) Represents 1,143,905 Series B preferred units and 106,627 Series B-1 preferred units. Sebastián Bernales, a manager on our board of managers, is an affiliate of Humboldt Fund. Humboldt Fund I, LP is an affiliated fund of Humboldt Fund. Humboldt Fund I, LP holds more than 5 percent of our voting securities.
(4) Represents 600,883 Series B preferred units and 99,519 Series B-1 preferred unit purchased by RA Capital Healthcare Fund, L.P., and 257,522 Series B preferred units and 42,651 Series B-1 preferred units purchased by RA Capital Nexus Fund II, L.P. Entities affiliated with RA Capital collectively hold more than 5 percent of our voting securities.
(5) Represents 429,202 Series B preferred units and 386,861 Series B-1 preferred units purchased by Sozo Ventures III, L.P. Entities affiliated with Sozo Ventures collectively hold more than 5 percent of our voting securities.

Agreements with Unitholders

In connection with our Series A-1, Series A-2, Series A-3, Series A-4, and Series A-5 preferred unit financings and our Series B preferred unit financing, we entered into investors' rights, voting and right of first refusal and co-sale agreements containing registration rights, information rights, voting rights and rights of first refusal, among other things, with certain holders of our preferred units and certain holders of our common units. These unitholder agreements will terminate upon the closing of this offering, except for the registration rights granted under our investors' rights agreement, as more fully described in "Description of Capital Stock—Registration Rights."

In connection with our Series A-4 preferred unit financing, we entered into a side letter agreement (the "Humboldt Side Letter"), with Humboldt Fund I, LP ("Humboldt"). Pursuant to the Humboldt Side Letter, we represented and warranted to Humboldt regarding certain U.S. tax status and CFIUS matters. We agreed that Humboldt would not be deemed a competitor for any purpose under the financing agreements. We further agreed to use commercially reasonable efforts to comply with all record-keeping, reporting and other reasonable request necessary to comply with any applicable U.S. tax law or to allow Humboldt and its Partners to comply with the applicable provisions of U.S. tax law with respect to the direct or indirect ownership of the Company.

In connection with our Series A-5 preferred unit financing, we entered into a side letter agreement (the "RA Capital Side Letter"), with RA Capital Healthcare Fund, L.P. and RA Capital Nexus Fund II, L.P. (collectively, "RA Capital"). Pursuant to the RA Capital Side Letter, RA Capital is entitled to purchase a portion of the preferred units in the event that the Company sells preferred units in a single transaction or series of related transactions

following the date of the RA Capital Side Letter, primarily for capital raising purposes, with gross proceeds to the Company in excess of $10,000,000. In addition, the Series A-5 preferred units held by RA Capital shall not be automatically converted into common units without the prior written approval of RA Capital, but shall remain subject to conversion immediately upon the closing of this offering.

We entered into a research and development master service agreement (the "Bayer R&D Agreement"), with Bayer Healthcare LLC ("Bayer"), in November 2019. Bayer was performing research and development services under the Bayer R&D Agreement in accordance with the statement of works agreed by the parties. Services under the Bayer R&D Agreement were completed as of December 31, 2020, and we accrued $0.2 million in accrued expenses and other current liabilities as of December 31, 2020. We paid $0.2 million to Bayer in February and March 2021 in connection with the Bayer R&D Agreement.

Convertible Promissory Note with Affini-T

In December 2020, we entered into a convertible promissory note agreement and a side letter with Affini-T Therapeutics, Inc. ("Affini-T"), a private biotechnology company. We paid cash of $1.5 million as a principal amount of the promissory note with 6% annual interest and maturity in December 2021. The promissory note was convertible in Affini-T's next qualifying round of financing at a conversion price equal to the lesser of (i) 85% of the price per share paid by other investors (or 80% if the qualified financing occurs after June 24, 2021) or (ii) the price per share obtained by dividing $30.0 million by the number of shares of common stock of Affini-T outstanding immediately prior to the qualified financing. In accordance with the side letter, we were engaged to perform the certain services for Affini-T. As a consideration for services, we received 1,867,300 shares of Affini-T common stock, of which 10% of such shares were vested at the issuance date and 90% of such shares were subject to forfeiture if no genome editing licensing agreement was finalized between us and Affini-T by October 31, 2021. Effective November 1, 2021, 1,653,570 common stock shares issued to us were forfeited and cancelled as the license agreement was not signed between the parties. When we entered into the convertible promissory note, our chief business officer at the time also served as chief executive officer of Affini-T. Our chief business officer departed the company in November 2021 and Affini-T was no longer a related party of the company as of December 31, 2021.

In March 2022, Affini-T closed a qualified round of financing, and the convertible promissory note and accrued interest were converted into 527,035 shares of Series A convertible preferred stock of Affini-T.

Equity Grants to Executive Officers

We have historically granted profits interests to our named executive officers as more fully described in the section entitled "Executive Compensation".

Indemnification Agreements

In connection with this offering, we intend to enter into new agreements to indemnify our directors and executive officers. These agreements will, among other things, require us to indemnify these individuals for certain expenses (including attorneys' fees), judgments, fines and settlement amounts reasonably incurred by such person in any action or proceeding, including any action by or in our right, on account of any services undertaken by such person on behalf of our company or that person's status as a member of our board of directors to the maximum extent allowed under Delaware law.

Policies for Approval of Related Party Transactions

Our board of directors reviews and approves transactions with directors, officers, and holders of five percent or more of our voting securities and their affiliates, each a related party. Prior to this offering, the material facts as to the related party's relationship or interest in the transaction were disclosed to our board of directors prior to their consideration of such transaction, and the transaction was not considered approved by our board of directors unless a majority of the directors who are not interested in the transaction approved the transaction. Further, when stockholders are entitled to vote on a transaction with a related party, the material facts of the related party's relationship or interest in the transaction were disclosed to the stockholders, who must approve the transaction in good faith.

In connection with this offering, we expect to adopt a written related party transactions policy that will provide that such transactions must be approved by our audit committee. This policy will become effective on the date on which the registration statement of which this prospectus forms a part is declared effective by the SEC. Pursuant to this policy, the audit committee has the primary responsibility for reviewing and approving or disapproving "related party transactions," which are transactions between us and related persons in which the aggregate amount involved exceeds or may be expected to exceed $120,000 and in which a related person has or will have a direct or indirect material interest. For purposes of this policy, a related person will be defined as a director, executive officer, nominee for director, or greater than 5 percent beneficial owner of our common stock, in each case since the beginning of the most recently completed year, and their immediate family members.

PRINCIPAL STOCKHOLDERS

The following table sets forth, as of June 30, 2023, information regarding the beneficial ownership of our common stock by:

- each person, or group of affiliated persons, who is known by us to be the beneficial owner of five percent or more of our outstanding common stock (on an as-converted to common stock basis);
- each of our directors;
- each of our named executive officers; and
- all of our current directors and executive officers as a group.

The information in the following table is calculated based on shares of common stock deemed to be outstanding before this offering and shares of common stock outstanding after this offering, assuming no exercise by the underwriters of their option to purchase additional shares of common stock. The number of shares outstanding is based on the number of shares of common stock outstanding (including shares of unvested restricted common stock) as of June 30, 2023 as adjusted to give effect to:

- the conversion of shares of our redeemable convertible preferred stock outstanding as of June 30, 2023 into an equivalent number of shares of our common stock, which will occur immediately prior to the completion of this offering; and
- the sale of shares of common stock in this offering (assuming no exercise of the underwriters' option to purchase additional shares).

Each individual or entity shown on the table has furnished information with respect to beneficial ownership. Except as otherwise indicated below, the address of each officer, director and five percent stockholder listed below is c/o Metagenomi Technologies, LLC, 1545 Park Avenue, Emeryville, California 94608.

We have determined beneficial ownership in accordance with the rules of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. These rules generally attribute beneficial ownership of securities to persons who possess sole or shared voting power or investment power with respect to those securities as well as any shares of common stock that the person has the right to acquire within 60 days of June 30, 2023 through the exercise of stock options or other rights. These shares are deemed to be outstanding and beneficially owned by the person holding those options for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person. Unless otherwise indicated, the persons or entities identified in this table have sole voting and investment power with respect to all shares shown as beneficially owned by them.

	Shares of common stock beneficially owned	Percentage of shares beneficially owned	
		Before offering	After offering
5% or Greater Stockholders			
Bayer HealthCare LLC			
Humboldt Fund I, LP (1)			
ModernaTX, Inc.			
Sake Holdings LLC (2)			
Entities affiliated with Sozo Ventures			
Entities affiliated with RA Capital			
Directors, Named Executive Officers and Other Executive Officers			
Brian C. Thomas, Ph.D.			
Juergen Eckhardt, M.D., MBA			
Sebastián Bernales, Ph.D.			
Risa Stack, Ph.D.			
Willard Dere, M.D.			
Santhosh Palani, Ph.D.			
Jian Irish, Ph.D., MBA			
Simon Harnest, MSc			
All executive officers and directors as a group (13 persons)			

* Less than one percent.

(1) Consists of shares of redeemable convertible preferred stock held by Humboldt Fund I, LP. Humboldt Fund I, LP is solely managed by Humboldt Capital, LLC, which is in turn managed by Sebastian Bernales, Francisco Dopazo and Benjamin Quiroga. As a result, each such individual may be deemed to share voting and dispositive power with respect to the shares held by Humboldt Fund I, LP. Each of Mr. Bernales, Dopazo and Quiroga expressly disclaims beneficial ownership of the shares held by Humboldt Fund I, LP, except to the extent of his pecuniary interest in such shares. The address for Humboldt Fund I, LP is 477 Madison Ave., 6th Floor, New York, NY 10022.

(2) Consists of shares of redeemable convertible preferred stock held by Sake Holdings LLC. Sake Holdings LLC is managed by its board of directors which consists of Sebastian Bernales and Eduardo Ergas. As a result, each such individual may be deemed to share voting and dispositive power with respect to the shares held by Sake Holdings LLC. Each of Mr. Bernales and Mr. Ergas expressly disclaims beneficial ownership of the shares held by Sake Holdings LLC, except to the extent of his pecuniary interest in such shares. The address for Sake Holdings LLC is 1700 Owens Street, Suite 515, San Francisco, CA 94158.

DESCRIPTION OF CAPITAL STOCK

The following descriptions are summaries of the material terms of our amended and restated certificate of incorporation and amended and restated bylaws, which will be effective immediately upon the closing of this offering. The descriptions of the common stock and preferred stock give effect to changes to our capital structure, including the Reorganization, that will occur immediately prior to the closing of this offering. We refer in this section to our amended and restated certificate of incorporation as our certificate of incorporation, and we refer to our amended and restated bylaws as our bylaws.

General

Upon completion of this offering, our authorized capital stock will consist of shares of common stock, par value $ per share, and shares of preferred stock, par value $ per share, all of which shares of preferred stock will be undesignated.

As of June 30, 2023, shares of our common stock were outstanding and held of record by stockholders, after giving effect to the Reorganization. This amount assumes the conversion of shares of our redeemable convertible preferred stock outstanding as of June 30, 2023 into an equivalent number of shares of our common stock, which will occur immediately prior to the closing of this offering.

Common Stock

The holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of the common stockholders. The holders of our common stock do not have any cumulative voting rights. Holders of our common stock are entitled to receive ratably any dividends declared by our board of directors out of funds legally available for that purpose, subject to any preferential dividend rights of any outstanding preferred stock. Our common stock has no preemptive rights, conversion rights or other subscription rights or redemption or sinking fund provisions.

In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in all assets remaining after payment of all debts and other liabilities and any liquidation preference of any outstanding preferred stock. The shares to be issued by us in this offering will be, when issued and paid for, validly issued, fully paid and non-assessable.

Preferred Stock

Immediately prior to the completion of this offering, all outstanding shares of our preferred stock will be converted into shares of our common stock. Upon the closing of this offering, our board of directors will have the authority, without further action by our stockholders, to issue up to shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting, or the designation of, such series, any or all of which may be greater than the rights of common stock. The issuance of our preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon our liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of our company or other corporate action. Immediately after consummation of this offering, no shares of preferred stock will be outstanding, and we have no present plan to issue any shares of preferred stock.

Options

We expect to reserve shares of common stock for future issuance under the 2023 Plan.

Registration Rights

Upon the completion of this offering, the holders of shares of our common stock, including those issuable upon the conversion of preferred stock upon closing of this offering, will be entitled to rights with respect to the registration of these securities under the Securities Act. These rights are provided under the terms of an amended and restated investors' rights agreement between us, certain holders of our common stock and holders of our preferred stock. The amended and restated investors' rights agreement includes demand registration rights, short-form registration rights and piggyback registration rights. All fees, costs, and expenses of underwritten registrations under this agreement will be borne by us and all selling expenses, including underwriting discounts and selling commissions, will be borne by the holders of the shares being registered.

Demand Registration Rights

Beginning 180 days after the effective date of this registration statement, the holders of shares of our common stock, including those issuable upon the conversion of shares of our preferred units upon closing of this offering, are entitled to demand registration rights. Under the terms of the amended and restated investors' rights agreement, we will be required, upon the written request of holders of at least a majority of the securities eligible for registration then outstanding to file a registration statement with respect to at least a majority of the securities eligible for registration then outstanding, we will be required to file a registration statement within 60 days of such request covering all securities eligible for registration that our securityholders request to be included in such registration. We are required to effect only one registration pursuant to this provision of the amended and restated investors' rights agreement in any twelve-month period.

Short-Form Registration Rights

Pursuant to the amended and restated investors' rights agreement, if we are eligible to file a registration statement on Form S-3, upon the written request of securityholders holding at least twenty percent of the securities eligible for registration then outstanding we will be required to file a Form S-3 registration restatement with respect to outstanding securities of such securityholders having an aggregate price to the public of at least $5 million. We are required to effect only two registrations in any twelve-month period pursuant to this provision of the amended and restated investors' rights agreement. The right to have such shares registered on Form S-3 is further subject to other specified conditions and limitations.

Piggyback Registration Rights

Pursuant to the amended and restated investors' rights agreement, if we register any of our securities either for our own account or for the account of other security holders, the holders of our common stock, including those issuable upon the conversion of our preferred units, are entitled to include their shares in the registration. Subject to certain exceptions contained in the amended and restated investors' rights agreement, we and the underwriters may limit the number of shares included in the underwritten offering to the number of shares which we and the underwriters determine in our sole discretion will not jeopardize the success of the offering.

Indemnification

Our amended and restated investors' rights agreement contains customary cross-indemnification provisions, under which we are obligated to indemnify holders of registrable securities in the event of material misstatements

or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions attributable to them.

Expiration of Registration Rights

The demand registration rights, and short form registration rights granted under the amended and restated investors' rights agreement will terminate on the earliest to occur of (a) the closing of certain liquidation events, (b) the fifth anniversary of the completion of this offering or (c) at such time after this offering when the holders' shares may be sold without restriction pursuant to Rule 144 under the Securities Act within a three month period.

Expenses

Ordinarily, other than underwriting discounts and commissions, we are generally required to pay all expenses incurred by us related to any registration effected pursuant to the exercise of these registration rights. These expenses may include all registration and filing fees, printing expenses, fees and disbursements of our counsel, reasonable fees, and disbursements of a counsel for the selling security holders and blue-sky fees and expenses.

Anti-Takeover Effects of Delaware Law and Certain Provisions of Our Certificate of Incorporation and Bylaws to be in Effect Upon the Completion of this Offering

Some provisions of Delaware law include, and our certificate of incorporation and bylaws to be in effect upon the completion of this offering will include a number of provisions that may have the effect of delaying, deferring or preventing another party from acquiring control of us and encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts. These provisions include the items described below.

Board Composition and Filling Vacancies

Our certificate of incorporation will provide for the division of our board of directors into three classes serving staggered three-year terms, with one class being elected each year. Our certificate of incorporation also will provide that directors may be removed only for cause and then only by the affirmative vote of the holders of two-thirds or more of the shares then entitled to vote at an election of directors. Furthermore, any vacancy on our board of directors, however occurring, including a vacancy resulting from an increase in the size of our board, may only be filled by the affirmative vote of a majority of our directors then in office even if less than a quorum. The classification of directors, together with the limitations on removal of directors and treatment of vacancies, has the effect of making it more difficult for stockholders to change the composition of our board of directors.

No Written Consent of Stockholders

Our certificate of incorporation will provide that all stockholder actions are required to be taken by a vote of the stockholders at an annual or special meeting, and that stockholders may not take any action by written consent in lieu of a meeting. This limit may lengthen the amount of time required to take stockholder actions and would prevent the amendment of our bylaws or removal of directors by our stockholders without holding a meeting of stockholders.

Meetings of Stockholders

Our certificate of incorporation and bylaws will provide that only a majority of the members of our board of directors then in office may call special meetings of stockholders and only those matters set forth in the notice

of the special meeting may be considered or acted upon at a special meeting of stockholders. Our bylaws will limit the business that may be conducted at an annual meeting of stockholders to those matters properly brought before the meeting.

Advance Notice Requirements

Our bylaws will establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures will provide that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the action is to be taken. Generally, to be timely, notice must be received at our principal executive offices not less than 90 days nor more than 120 days prior to the first anniversary date of the annual meeting for the preceding year. Our bylaws will specify the requirements as to form and content of all stockholders' notices. These requirements may preclude stockholders from bringing matters before the stockholders at an annual or special meeting.

Amendment to Certificate of Incorporation and Bylaws

Any amendment of our certificate of incorporation must first be approved by a majority of our board of directors, and if required by law or our certificate of incorporation, must thereafter be approved by a majority of the outstanding shares entitled to vote on the amendment and a majority of the outstanding shares of each class entitled to vote thereon as a class, except that the amendment of the provisions relating to stockholder action, board composition, limitation of liability and the amendment of our bylaws and certificate of incorporation must be approved by not less than two-thirds of the outstanding shares entitled to vote on the amendment, and not less than two-thirds of the outstanding shares of each class entitled to vote thereon as a class. Our bylaws may be amended by the affirmative vote of a majority of the directors then in office, subject to any limitations set forth in the bylaws; and may also be amended by the affirmative vote of at least two-thirds of the outstanding shares entitled to vote on the amendment, or, if our board of directors recommends that the stockholders approve the amendment, by the affirmative vote of the majority of the outstanding shares entitled to vote on the amendment, in each case voting together as a single class.

Undesignated Preferred Stock

Our certificate of incorporation will provide for authorized shares of preferred stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of our stockholders, our board of directors could cause shares of preferred stock to be issued without stockholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer or insurgent stockholder or stockholder group. In this regard, our certificate of incorporation will grant our board of directors broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in control of us.

Delaware Anti-Takeover Statute

Upon completion of this offering, we will be subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a three-year period following the time that this

stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

- before the stockholder became interested, our board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85 percent of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances, but not the outstanding voting stock owned by the interested stockholder; or
- at or after the time the stockholder became interested, the business combination was approved by our board of directors and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, transfer, lease, pledge, exchange, mortgage or other disposition involving the interested stockholder of 10 percent or more of the assets of the corporation;
- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; or
- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15 percent or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Choice of Forum

Our bylaws will provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for any state law claims for (1) any derivative action or proceeding brought on our behalf, (2) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, and employees to us or our stockholders, (3) any action asserting a claim arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our bylaws (including the interpretation, validity or enforceability thereof), or (4) any action asserting a claim that is governed by the internal affairs doctrine; provided, however, that the this provision shall not apply to any causes of action arising under the Securities Act or Exchange Act. In addition, our bylaws will provide that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the sole and exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act. Any person or entity purchasing or otherwise acquiring any interest in our securities shall be deemed to have notice of and consented to these forum provisions. These forum provisions may impose additional costs on stockholders, may limit our stockholders' ability to bring a claim in a forum they find favorable, and the designated courts may reach different judgments or results than other courts. In addition, there is uncertainty as to whether the federal forum provision for Securities Act claims will be enforced, which may impose additional costs on us and our stockholders.

Stock Exchange Listing

We have applied to list our common stock on the Nasdaq Global Select Market under the proposed trading symbol “MGX.” The closing of this offering is contingent upon such listing.

Transfer Agent and Registrar

The Transfer Agent and Registrar for our common stock will be .

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our shares. Future sales of our common stock in the public market, or the availability of such shares for sale in the public market, could adversely affect market prices prevailing from time to time. As described below, only a limited number of shares will be available for sale shortly after this offering due to contractual and legal restrictions on resale. Nevertheless, sales of shares of our common stock in the public market after such restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price at such time and our ability to raise equity capital in the future.

Based on the number of shares outstanding as of June 30, 2023, upon the completion of this offering and after giving effect to the Reorganization, shares of our common stock will be outstanding, assuming the issuance of shares offered by us in this offering, no exercise of the underwriters' option to purchase additional shares and no exercise of outstanding options. Of the outstanding shares, all of the shares sold in this offering will be freely tradable, except that any shares held by our affiliates, as that term is defined in Rule 144 under the Securities Act, may only be sold in compliance with the limitations described below, and restricted shares of common stock are subject to time-based vesting terms. All remaining shares of common stock held by existing stockholders immediately prior to the completion of this offering will be "restricted securities" as such term is defined in Rule 144 under the Securities Act. These restricted securities were issued and sold by us in private transactions and are eligible for public sale only if registered under the Securities Act or if they qualify for an exemption from registration under the Securities Act, including the exemptions provided by Rule 144 or Rule 701, summarized below.

Rule 144

In general, a person who has beneficially owned restricted stock for at least six months would be entitled to sell their securities provided that (i) such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale and (ii) we are subject to the periodic reporting requirements of the Exchange Act for at least 90 days before the sale. Persons who have beneficially owned restricted shares for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1 percent of the number of shares then outstanding, which will equal approximately shares immediately after this offering, assuming no exercise of the underwriters' option to purchase additional shares, based on the number of shares outstanding as of June 30, 2023; or
- the average weekly trading volume of our common stock on the Nasdaq Global Select Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;

provided, in each case, that we are subject to the periodic reporting requirements of the Exchange Act for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information and notice provisions of Rule 144.

Rule 701

Rule 701 under the Securities Act, as in effect on the date of this prospectus, permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions of Rule 144, including the holding period requirement. Most of our employees, executive officers or directors who purchased shares under a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701, but all holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling their shares.

However, substantially all Rule 701 shares are subject to lock-up agreements as described below and under “Underwriting” included elsewhere in this prospectus and will become eligible for sale upon the expiration of the restrictions set forth in those agreements.

Lock-Up Agreements

We, all of our directors and officers, and substantially all of our stockholders have agreed not to sell or otherwise transfer or dispose of any of our securities for a period of 180 days from the date of this prospectus, subject to certain exceptions. The representatives of the underwriters may, in their sole discretion, permit early release of shares subject to the lock-up agreements. See the section entitled “Underwriting,” included elsewhere in this prospectus for more information.

Registration Rights

Upon completion of this offering, certain holders of our securities will be entitled to various rights with respect to registration of their shares under the Securities Act. Registration of these shares under the Securities Act would result in these shares becoming fully tradable without restriction under the Securities Act immediately upon the effectiveness of the registration. See the section entitled “Description of Capital Stock—Registration Rights” included elsewhere in this prospectus for more information.

Equity Incentive Plans

We intend to file one or more registration statements on Form S-8 under the Securities Act to register our shares issued or reserved for issuance under our equity incentive plans. The first such registration statement is expected to be filed soon after the date of this prospectus and will automatically become effective upon filing with the SEC. Accordingly, shares registered under such registration statement will be available for sale in the open market, unless such shares are subject to vesting restrictions with us or the lock-up restrictions described above. As of the date of this prospectus, we estimate that such registration statement on Form S-8 will cover approximately shares.

MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS

The following discussion is a summary of certain material U.S. federal income tax considerations applicable to non-U.S. holders (as defined below) with respect to their ownership and disposition of shares of our common stock issued pursuant to this offering, referred to below as "our common stock". For purposes of this discussion, a non-U.S. holder means a beneficial owner of our common stock that is for U.S. federal income tax purposes:

- a non-resident alien individual;
- a foreign corporation or other foreign organization taxable as a corporation; or
- a foreign trust or estate the income of which is not subject to U.S. federal income tax on a net income basis.

This discussion does not address the tax treatment of partnerships or other entities that are pass-through entities for U.S. federal income tax purposes or persons that hold their common stock through partnerships or other pass-through entities. A partner in a partnership or other pass-through entity that will hold our common stock should consult his, her or its tax advisor regarding the tax consequences of acquiring, holding and disposing of our common stock through a partnership or other pass-through entity, as applicable.

This discussion is based on current provisions of the U.S. Internal Revenue Code of 1986, as amended, which we refer to as the Code, existing and proposed U.S. Treasury Regulations promulgated thereunder, current administrative rulings and judicial decisions, all as in effect as of the date of this prospectus and, all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any such change or differing interpretation could alter the tax consequences to non-U.S. holders described in this prospectus. There can be no assurance that the Internal Revenue Service, which we refer to as the IRS, will not challenge one or more of the tax consequences described herein. We assume in this discussion that a non-U.S. holder holds shares of our common stock as a capital asset within the meaning of Section 1221 of the Code, generally property held for investment.

This discussion does not address all aspects of U.S. federal income taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances nor does it address any aspects of U.S. state, local or non-U.S. taxes, the alternative minimum tax, the Medicare contribution tax on net investment income, the rules regarding qualified small business stock within the meaning of Section 1202 of the Code, or any other aspect of any U.S. federal tax other than income taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

- insurance companies;
- tax-exempt or governmental organizations;
- financial institutions;
- brokers or dealers in securities;
- "regulated investment companies" and "real estate investment trusts";
- pension plans;
- "controlled foreign corporations," "passive foreign investment companies," and corporations that accumulate earnings to avoid U.S. federal income tax;
- "qualified foreign pension funds," or entities wholly owned by a "qualified foreign pension fund";

- partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and partners and investors therein);
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons who have elected to mark securities to market for U.S. federal income tax purposes;
- persons that hold our common stock as part of a straddle, conversion transaction, synthetic security, or other integrated investment; and
- U.S. expatriates.

This discussion is for general information only and is not tax advice. Accordingly, all prospective non-U.S. holders of our common stock should consult their tax advisors with respect to the U.S. federal, state, local and non-U.S. tax consequences of the purchase, ownership and disposition of our common stock.

Distributions on Our Common Stock

We have never declared or paid any cash distributions on our members' capital, and we do not anticipate paying cash distributions on our common stock for the foreseeable future. Distributions, if any, on our common stock will generally constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's tax basis in the common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below in "Gain on Sale or Other Taxable Disposition of Our Common Stock." Any such distributions will also be subject to the discussions below under the sections entitled "Backup Withholding and Information Reporting" and "Withholding and Information Reporting Requirements—FATCA."

Subject to the discussion in the following two paragraphs in this section, dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30 percent rate or a reduced rate specified by an applicable income tax treaty between the United States and such holder's country of residence.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30 percent withholding tax if the non-U.S. holder satisfies applicable certification requirements. However, such U.S. effectively connected income, net of specified deductions and credits, is taxed at the same graduated U.S. federal income tax rates applicable to United States persons (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is a corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30 percent rate or a reduced rate specified by an applicable income tax treaty between the United States and such holder's country of residence.

A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or other applicable or successor form) to the applicable withholding agent and satisfy applicable certification and other requirements. Any documentation provided to an applicable withholding agent may need to be updated in certain circumstances. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS.

Gain on Sale or Other Taxable Disposition of Our Common Stock

Subject to the discussions below under “Backup Withholding and Information Reporting” and “Withholding and Information Reporting Requirements—FATCA,” a non-U.S. holder generally will not be subject to any U.S. federal income or withholding tax on any gain realized upon such holder’s sale or other taxable disposition of shares of our common stock unless:

- the gain is effectively connected with the non-U.S. holder’s conduct of a U.S. trade or business and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed base maintained by such non-U.S. holder in the United States, in which case the non-U.S. holder generally will be taxed on a net income basis at the graduated U.S. federal income tax rates applicable to United States persons (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above in “Distributions on Our Common Stock” also may apply;
- the non-U.S. holder is a nonresident alien individual who is present in the United States for a period or periods aggregating 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30 percent tax (or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder’s country of residence) on the net gain derived from the disposition, which may be offset by certain U.S. source capital losses of the non-U.S. holder, if any (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses; or
- we are, or have been, at any time during the five-year period preceding such sale or other taxable disposition (or the non-U.S. holder’s holding period, if shorter) a “U.S. real property holding corporation,” as described below, unless our common stock is regularly traded on an established securities market and the non-U.S. holder holds no more than 5 percent of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the 5-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. Generally, a corporation is a U.S. real property holding corporation if the fair market value of its U.S. real property interests, as defined in the Code and applicable Treasury regulations, equals or exceeds 50 percent of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we do not believe that we are, or have been, a U.S. real property holding corporation, or that we are likely to become one in the future. No assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rules described above.

Backup Withholding and Information Reporting

We (or the applicable paying agent) must report annually to the IRS and to each non-U.S. holder the gross amount of the distributions on our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. A non-U.S. holder may have to comply with specific certification procedures to establish that the holder is not a United States person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. Dividends paid to non-U.S. holders subject to withholding of U.S. federal income tax, as described above in “Distributions on Our Common Stock,” generally will be exempt from U.S. backup withholding.

Information reporting and backup withholding will generally apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through

a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker.

Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them. Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder can be refunded or credited against the non-U.S. holder's U.S. federal income tax liability, if any, provided that an appropriate claim is filed with the IRS in a timely manner.

Withholding and Information Reporting Requirements—FATCA

Provisions of the Code commonly referred to as the Foreign Account Tax Compliance Act (FATCA) generally impose a U.S. federal withholding tax at a rate of 30 percent on payments of dividends on, or, subject to the discussion of certain proposed U.S. Treasury regulations below, gross proceeds from the sale or other disposition of, our common stock paid to a foreign entity unless (i) if the foreign entity is a "foreign financial institution," such foreign entity undertakes certain due diligence, reporting, withholding, and certification obligations, (ii) if the foreign entity is not a "foreign financial institution," such foreign entity identifies certain of its U.S. investors, if any, or (iii) the foreign entity is otherwise exempt under FATCA. However, the U.S. Treasury released proposed regulations which, if finalized in their present form, would eliminate the federal withholding tax of 30 percent applicable to the gross proceeds of a sale or other disposition of our common stock. In the preamble to such proposed regulations, the U.S. Treasury stated that taxpayers (including withholding agents) may generally rely on the proposed regulations until final regulations are issued. Under certain circumstances, a non-U.S. holder may be eligible for refunds or credits of this withholding tax. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this paragraph. Non-U.S. holders should consult their tax advisors regarding the possible implications of this legislation on their investment in our common stock and the entities through which they hold our common stock, including, without limitation, the process and deadlines for meeting the applicable requirements to prevent the imposition of the 30 percent withholding tax under FATCA.

UNDERWRITING

We are offering the shares of common stock described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC, Jefferies LLC, Cowen and Company, LLC, Wells Fargo Securities, LLC, and BMO Capital Markets Corp. are acting as joint book-running managers of the offering and as representatives of the underwriters. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the number of shares of common stock listed next to its name in the following table:

Name	Number of shares of common stock
J.P. Morgan Securities LLC	
Jefferies LLC	
Cowen and Company, LLC	
Wells Fargo Securities, LLC	
BMO Capital Markets Corp.	
Chardan Capital Markets, LLC	
Total	

The underwriters are committed to purchase all the shares of common stock offered by us if they purchase any shares of common stock. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased, or the offering may be terminated.

The underwriters propose to offer the shares of common stock directly to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers at that price less a concession not in excess of $ per share. Any such dealers may resell shares of common stock to certain other brokers or dealers at a discount of up to $ per share from the initial public offering price. After the initial offering of the shares of common stock to the public, if all of the shares of common stock are not sold at the initial public offering price, the underwriters may change the offering price and the other selling terms. Sales of any shares of common stock made outside of the United States may be made by affiliates of the underwriters.

The underwriters have an option to buy up to additional shares of common stock from us to cover sales of shares of common stock by the underwriters which exceed the number of shares of common stock specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this option to purchase additional shares of common stock. If any shares of common stock are purchased with this option to purchase additional shares of common stock, the underwriters will purchase shares of common stock in approximately the same proportion as shown in the table above. If any additional shares of common stock are purchased, the underwriters will offer the additional shares of common stock on the same terms as those on which the shares of common stock are being offered.

The underwriting fee is equal to the public offering price per share of common stock less the amount paid by the underwriters to us per share of common stock. The underwriting fee is $ per share. The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares of common stock.

	Without option to purchase additional shares of common stock exercise	With full option to purchase additional shares of common stock exercise
Per Common Share	$	$
Total	$	$

We estimate that the total expenses of this offering, including registration, filing, and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately $ million. We have agreed to reimburse the underwriters for expenses relating to clearance of this offering with the Financial Industry Regulatory Authority, Inc. of up to $.

A prospectus in electronic format may be made available on the web sites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to allocate a number of shares of common stock to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters and selling group members that may make Internet distributions on the same basis as other allocations.

We have agreed that we will not (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, or submit to, or file with, the SEC a registration statement under the Securities Act relating to, any of our shares of common stock or securities convertible into or exercisable or exchangeable for any of our shares of common stock, or publicly disclose the intention to make any offer, sale, pledge, loan, disposition or filing, or (ii) enter into any swap or other arrangement that transfers all or a portion of the economic consequences associated with the ownership of any shares of common stock or any such other securities (regardless of whether any of these transactions are to be settled by the delivery of shares of common stock or such other securities, in cash or otherwise), in each case without the prior written consent of the representatives for a period of 180 days after the date of this prospectus, other than the shares of our common stock to be sold in this offering.

Our directors and executive officers, and substantially all of our stockholders (such persons, the "lock-up parties") have entered into lock-up agreements with the underwriters prior to the commencement of this offering pursuant to which each lock-up party, with limited exceptions, for a period of 180 days after the date of this prospectus (such period, the "restricted period"), may not (and may not cause any of their direct or indirect affiliates to), without the prior written consent of the representatives, (1) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for our common stock (including without limitation, common stock or such other securities which may be deemed to be beneficially owned by such lock-up parties in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant (collectively with the common stock, the "lock-up securities"), (2) enter into any hedging, swap or other agreement or transaction that transfers, in whole or in part, any of the economic consequences of ownership of the lock-up securities, whether any such transaction described in clause (1) or (2) above is to be settled by delivery of lock-up securities, in cash or otherwise, (3) make any

demand for, or exercise any right with respect to, the registration of any lock-up securities, or (4) publicly disclose the intention to do any of the foregoing. Such persons or entities have further acknowledged that these undertakings preclude them from engaging in any hedging or other transactions or arrangements (including, without limitation, any short sale or the purchase or sale of, or entry into, any put or call option, or combination thereof, forward, swap or any other derivative transaction or instrument, however described or defined) designed or intended, or which could reasonably be expected to lead to or result in, a sale or disposition or transfer (by any person or entity, whether or not a signatory to such agreement) of any economic consequences of ownership, in whole or in part, directly or indirectly, of any lock-up securities, whether any such transaction or arrangement (or instrument provided for thereunder) would be settled by delivery of lock-up securities, in cash or otherwise.

The restrictions described in the immediately preceding paragraph and contained In the lock-up agreements between the underwriters and the lock-up parties do not apply, subject in certain cases to various conditions, to certain transactions, including (a) transfers or disposals of lock-up securities: (i) as bona fide gifts, or for bona fide estate planning purposes, (ii) by will or intestacy or any other testamentary document, (iii) to any trust for the direct or indirect benefit of the lock-up party or any immediate family member, (iv) to a corporation, partnership, limited liability company, investment fund or other entity (A) of which the lock-up party and/or its immediate family members are the legal and beneficial owner of all of the outstanding equity securities or similar interests, or (B) controlled by, or under common control with, the undersigned or the immediate family of the undersigned (v) to a nominee or custodian of a person or entity to whom a disposition or transfer would be permissible under clauses (i) through (iv), (vi) in the case of a corporation, partnership, limited liability company, trust or other business entity, (A) to another corporation, partnership, limited liability company, trust or other business entity that is an affiliate of the lock-up party, or to any investment fund or other entity controlling, controlled by, managing or managed by or under common control with the lock-up party or its affiliates or (B) as part of a distribution to limited members, members or stockholders of the lock-up party; (vii) by operation of law, (viii) to us from an employee upon death, disability or termination of employment of such employee, (ix) as part of a sale of lock-up securities acquired in open market transactions after the completion of this offering, (x) to us in connection with the vesting, settlement or exercise of restricted stock units, options, warrants or other rights to purchase shares of our common stock (including “net” or “cashless” exercise), including for the payment of exercise price and tax and remittance payments, or (xi) pursuant to a bona fide third-party tender offer, merger, consolidation or other similar transaction approved by our board of directors and made to all shareholders involving a change in control, provided that if such transaction is not completed, all such lock-up securities would remain subject to the restrictions in the immediately preceding paragraph; provided that (A) in the case of any transfer or distribution pursuant to clause (a)(i), (ii), (iii), (iv), (v), (vi) and (vii), such transfer shall not involve a disposition for value and each donee, devisee, transferee or distributee shall execute and deliver to the representatives a lock-up letter in the form of the lock-up letter, (B) in the case of any transfer or distribution pursuant to clause (a), (iii), (iv), (v), (vi), (ix) and (x) no filing by any party (donor, donee, devisee, transferor, transferee, distributer or distributee) under the Exchange Act, or other public announcement shall be required or shall be made voluntarily in connection with such transfer or distribution (other than a filing on a Form 5 or a filing required pursuant to Section 13 of the Exchange Act and the rules and regulations promulgated thereunder made after the expiration of the restricted period referred to above) and (C) in the case of any transfer or distribution pursuant to clause (a)(i), (ii), (vii) and (viii) it shall be a condition to such transfer that no public filing, report or announcement shall be voluntarily made and if any filing under Section 16(a) of the Exchange Act, or other public filing, report or announcement reporting a reduction in beneficial ownership of shares of common stock in connection with such transfer or distribution shall be legally required during the restricted period, such filing, report or announcement shall clearly indicate in the footnotes thereto the nature and conditions of such transfer; (b) exercise of the options, settlement of RSUs or other equity awards, or the exercise of warrants granted pursuant to plans described in in this

prospectus, provided that any lock-up securities received upon such exercise, vesting or settlement would be subject to restrictions similar to those in the immediately preceding paragraph; (c) the conversion of outstanding preferred stock, warrants to acquire preferred stock, or convertible securities into shares of our common stock or warrants to acquire shares of our common stock, provided that any common stock or warrant received upon such conversion would be subject to restrictions similar to those in the immediately preceding paragraph; and (d) the establishment by lock-up parties of trading plans under Rule 10b5-1 under the Exchange Act, provided that such plan does not provide for the transfer of lock-up securities during the restricted period.

The representatives, in their sole discretion, may release the securities subject to any of the lock-up agreements with the underwriters described above, in whole or in part at any time.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act.

We have applied to have our common stock approved for listing/quotation on the Nasdaq Global Select Market under the symbol “MGX.” The closing of this offering is contingent upon such listing.

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of common stock in the open market for the purpose of preventing or retarding a decline in the market price of the common stock while this offering is in progress. These stabilizing transactions may include making short sales of common stock, which involves the sale by the underwriters of a greater number of shares of common stock than they are required to purchase in this offering, and purchasing shares of common stock on the open market to cover positions created by short sales. Short sales may be “covered” shorts, which are short positions in an amount not greater than the underwriters’ option to purchase additional shares of common stock referred to above, or may be “naked” shorts, which are short positions in excess of that amount. The underwriters may close out any covered short position either by exercising their option to purchase additional shares, in whole or in part, or by purchasing shares of common stock in the open market. In making this determination, the underwriters will consider, among other things, the price of shares of common stock available for purchase in the open market compared to the price at which the underwriters may purchase shares of common stock through the option to purchase additional shares of common stock. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares of common stock in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act, they may also engage in other activities that stabilize, maintain or otherwise affect the price of the common stock, including the imposition of penalty bids. This means that if the representatives of the underwriters purchase common stock in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those shares of common stock as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of the common stock or preventing or retarding a decline in the market price of the common stock, and, as a result, the price of the common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on the open market, in the over-the-counter market or otherwise.

Prior to this offering, there has been no public market for our common stock. The initial public offering price will be determined by negotiations between us and the representatives of the underwriters. In determining the initial public offering price, we and the representatives of the underwriters expect to consider a number of factors including:

- the information set forth in this prospectus and otherwise available to the representatives;
- our prospects and the history and prospects for the industry in which we compete;
- an assessment of our management;
- our prospects for future earnings;
- the general condition of the securities markets at the time of this offering;
- the recent market prices of, and demand for, publicly traded common stock of generally comparable companies; and
- other factors deemed relevant by the underwriters and us.

Neither we nor the underwriters can assure investors that an active trading market will develop for our shares of common stock, or that the shares of common stock will trade in the public market at or above the initial public offering price.

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Certain of the underwriters and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. In addition, from time to time, certain of the underwriters and their affiliates may effect transactions for their own account or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Notice to Prospective Investors in the European Economic Area

In relation to each Member State of the European Economic Area (each a “Relevant State”), no shares of our common stock have been offered or will be offered pursuant to the offering to the public in that Relevant State prior to the publication of a prospectus in relation to the shares of our common stock which has been approved by the competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation), except that offers of shares of common stock may be made to the public in that Relevant State at any time under the following exemptions under the Prospectus Regulation:

a) to any legal entity which is a qualified investor as defined under the Prospectus Regulation;

b) to fewer than 150 natural or legal persons (other than qualified investors as defined under the Prospectus Regulation), subject to obtaining the prior consent of the underwriters for any such offer; or

c) in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of shares of common stock shall require the Issuer or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

Each person in a Relevant State who initially acquires any shares of common stock or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with the Company and the underwriters that it is a qualified investor within the meaning of the Prospectus Regulation.

In the case of any shares of common stock being offered to a financial intermediary as that term is used in Article 5(1) of the Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares of common stock acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer to the public other than their offer or resale in a Relevant State to qualified investors, in circumstances in which the prior consent of the underwriters has been obtained to each such proposed offer or resale.

The Company, the underwriters and their affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgements and agreements.

For the purposes of this provision, the expression an “offer to the public” in relation to any shares of common stock in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares of common stock to be offered so as to enable an investor to decide to purchase or subscribe for any shares of common stock, and the expression “Prospectus Regulation” means Regulation (EU) 2017/1129.

Notice to Prospective Investors in the United Kingdom

In relation to the United Kingdom (the “UK”), no shares of our common stock have been offered or will be offered pursuant to the offering to the public in the UK prior to the publication of a prospectus in relation to the shares of common stock which has been approved by the Financial Conduct Authority in the UK in accordance with the UK Prospectus Regulation and the FSMA, except that offers of shares of common stock may be made to the public in the UK at any time under the following exemptions under the UK Prospectus Regulation and the FSMA:

(a) to any legal entity which is a qualified investor as defined under the UK Prospectus Regulation;

(b) to fewer than 150 natural or legal persons (other than qualified investors as defined under the UK Prospectus Regulation), subject to obtaining the prior consent of the underwriters for any such offer; or

(c) at any time in other circumstances falling within section 86 of the FSMA,

provided that no such offer of shares of common stock shall require the Issuer or any underwriter to publish a prospectus pursuant to Section 85 of the FSMA or Article 3 of the UK Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation.

Each person in the UK who initially acquires any shares of common stock or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with the Company and the underwriters that it is a qualified investor within the meaning of the UK Prospectus Regulation.

In the case of any shares of common stock being offered to a financial intermediary as that term is used in Article 5(1) of the UK Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares of common stock acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer to the public other than their offer or resale in the UK to qualified investors, in circumstances in which the prior consent of the underwriters has been obtained to each such proposed offer or resale.

The Company, the underwriters and their affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgements and agreements.

For the purposes of this provision, the expression an "offer to the public" in relation to any shares of our common stock in the UK means the communication in any form and by any means of sufficient information on the terms of the offer and any shares of our common stock to be offered so as to enable an investor to decide to purchase or subscribe for any shares of our common stock, the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018, and the expression "FSMA" means the Financial Services and Markets Act 2000.

This document is for distribution only to persons who (i) have professional experience in matters relating to investments and who qualify as investment professionals within the meaning of Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Financial Promotion Order"), (ii) are persons falling within Article 49(2)(a) to (d) ("high net worth companies, unincorporated associations etc.") of the Financial Promotion Order, (iii) are outside the United Kingdom, or (iv) are persons to whom an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) in connection with the issue or sale of any securities may otherwise lawfully be communicated or caused to be communicated (all such persons together being referred to as "relevant persons"). This document is directed only at relevant persons and must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this document relates is available only to relevant persons and will be engaged in only with relevant persons.

Notice to Prospective Investors in Canada

The shares of common stock may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the shares of common stock must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts ("NI 33-105"), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Notice to Prospective Investors in Switzerland

The shares of common stock may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange ("SIX"), or on any other stock exchange or regulated trading facility in Switzerland. This document does not constitute a prospectus within the meaning of, and has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares of common stock, or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company, the shares of common stock have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of shares of common stock will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA ("FINMA"), and the offer of shares of common stock has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes ("CISA"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares of common stock.

Notice to Prospective Investors in Hong Kong

The shares of common stock have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (a) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571 of the Laws of Hong Kong) ("SFO"), of Hong Kong and any rules made thereunder; or (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong) ("CO"), or which do not constitute an offer to the public within the meaning of the CO. No advertisement, invitation or document relating to the shares of common stock has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares of common stock which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made thereunder.

Notice to Prospective Investors in Singapore

Each joint book-running manager has acknowledged that this prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each joint book-running manager has represented and agreed that it has not offered or sold any shares of common stock or caused the shares of common stock to be made the subject of an invitation for subscription or purchase and will not offer or sell any shares of common stock or cause the shares of common stock to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this prospectus or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares of common stock, whether directly or indirectly, to any person in Singapore other than:

(a) to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, as modified or amended from time to time (the "SFA")) pursuant to Section 274 of the SFA;

(b) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA; or

(c) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares of common stock are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor, securities or securities-based derivatives contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares of common stock pursuant to an offer made under Section 275 of the SFA except:

    (i) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

    (ii) where no consideration is or will be given for the transfer;

    (iii) where the transfer is by operation of law;

    (iv) as specified in Section 276(7) of the SFA; or

    (v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Singapore SFA Product Classification—In connection with Section 309B of the SFA and the CMP Regulations 2018, unless otherwise specified before an offer of shares of common stock, we have determined, and hereby notify all relevant persons (as defined in Section 309A(1) of the SFA), that the shares of common stock are "prescribed capital markets products" (as defined in the CMP Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Notice to Prospective Investors in Japan

The shares of common stock have not been and will not be registered pursuant to Article 4, Paragraph 1 of the Financial Instruments and Exchange Act. Accordingly, none of the shares of common stock nor any interest therein may be offered or sold, directly or indirectly, in Japan or to, or for the benefit of, any "resident" of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to or for the benefit of a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and any other applicable laws, regulations and ministerial guidelines of Japan in effect at the relevant time.

Notice to Prospective Investors in the United Arab Emirates

The shares of common stock have not been, and are not being, publicly offered, sold, promoted or advertised in the United Arab Emirates (including the Dubai International Financial Centre) other than in compliance with the laws of the United Arab Emirates (and the Dubai International Financial Centre) governing the issue, offering and sale of securities. Further, this prospectus does not constitute a public offer of securities in the United Arab

Emirates (including the Dubai International Financial Centre) and is not intended to be a public offer. This prospectus has not been approved by or filed with the Central Bank of the United Arab Emirates, the Securities and Commodities Authority or the Dubai Financial Services Authority.

Notice to Prospective Investors in Israel

In the State of Israel this prospectus shall not be regarded as an offer to the public to purchase shares of common stock under the Israeli Securities Law, 5728—1968, which requires a prospectus to be published and authorized by the Israel Securities Authority, if it complies with certain provisions of Section 15 of the Israeli Securities Law, 5728–1968, including, inter alia, if: (i) the offer is made, distributed or directed to not more than 35 investors, subject to certain conditions (the "Addressed Investors"); or (ii) the offer is made, distributed or directed to certain qualified investors defined in the First Addendum of the Israeli Securities Law, 5728—1968, subject to certain conditions (the "Qualified Investors"). The Qualified Investors shall not be taken into account in the count of the Addressed Investors and may be offered to purchase securities in addition to the 35 Addressed Investors. We have not and will not take any action that would require it to publish a prospectus in accordance with and subject to the Israeli Securities Law, 5728—1968. We have not and will not distribute this prospectus or make, distribute or direct an offer to subscribe for our shares of common stock to any person within the State of Israel, other than to Qualified Investors and up to 35 Addressed Investors.

Qualified Investors may have to submit written evidence that they meet the definitions set out in of the First Addendum to the Israeli Securities Law, 5728—1968. In particular, we may request, as a condition to be offered shares of common stock, that Qualified Investors will each represent, warrant and certify to us and/or to anyone acting on our behalf: (i) that it is an investor falling within one of the categories listed in the First Addendum to the Israeli Securities Law, 5728—1968; (ii) which of the categories listed in the First Addendum to the Israeli Securities Law, 5728—1968 regarding Qualified Investors is applicable to it; (iii) that it will abide by all provisions set forth in the Israeli Securities Law, 5728—1968 and the regulations promulgated thereunder in connection with the offer to be issued shares of common stock; (iv) that the shares of common stock that it will be issued are, subject to exemptions available under the Israeli Securities Law, 5728—1968: (a) for its own account; (b) for investment purposes only; and (c) not issued with a view to resale within the State of Israel, other than in accordance with the provisions of the Israeli Securities Law, 5728—1968; and (v) that it is willing to provide further evidence of its Qualified Investor status. Addressed Investors may have to submit written evidence in respect of their identity and may have to sign and submit a declaration containing, inter alia, the Addressed Investor's name, address and passport number or Israeli identification number.

Notice to Prospective Investors in Australia

This prospectus:

(a) does not constitute a disclosure document or a prospectus under Chapter 6D.2 of the Corporations Act 2001 (Cth) (the "Corporations Act");

(b) has not been, and will not be, lodged with the Australian Securities and Investments Commission ("ASIC"), as a disclosure document for the purposes of the Corporations Act and does not purport to include the information required of a disclosure document for the purposes of the Corporations Act; and

(c) may only be provided in Australia to select investors who are able to demonstrate that they fall within one or more of the categories of investors, available under section 708 of the Corporations Act ("Exempt Investors").

The shares of common stock may not be directly or indirectly offered for subscription or purchased or sold, and no invitations to subscribe for or buy the shares of common stock may be issued, and no draft or definitive offering

memorandum, advertisement or other offering material relating to any shares of common stock may be distributed in Australia, except where disclosure to investors is not required under Chapter 6D of the Corporations Act or is otherwise in compliance with all applicable Australian laws and regulations. By submitting an application for the shares of common stock, you represent and warrant to us that you are an Exempt Investor.

As any offer of shares of common stock under this document will be made without disclosure in Australia under Chapter 6D.2 of the Corporations Act, the offer of those securities for resale in Australia within 12 months may, under section 707 of the Corporations Act, require disclosure to investors under Chapter 6D.2 if none of the exemptions in section 708 applies to that resale. By applying for the shares of common stock you undertake to us that you will not, for a period of 12 months from the date of issue of the shares of common stock, offer, transfer, assign or otherwise alienate those shares of common stock to investors in Australia except in circumstances where disclosure to investors is not required under Chapter 6D.2 of the Corporations Act or where a compliant disclosure document is prepared and lodged with ASIC.

Notice to Prospective Investors in China

This prospectus will not be circulated or distributed in the PRC and the shares of common stock will not be offered or sold, and will not be offered or sold to any person for re-offering or resale directly or indirectly to any residents of the PRC except pursuant to any applicable laws and regulations of the PRC. Neither this prospectus nor any advertisement or other offering material may be distributed or published in the PRC, except under circumstances that will result in compliance with applicable laws and regulations.

Notice to Prospective Investors in Korea

The shares of common stock have not been and will not be registered under the Financial Investments Services and Capital Markets Act of Korea and the decrees and regulations thereunder (“FSCMA”), and the shares of common stock have been and will be offered in Korea as a private placement under the FSCMA. None of the shares of common stock may be offered, sold or delivered directly or indirectly, or offered or sold to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea except pursuant to the applicable laws and regulations of Korea, including the FSCMA and the Foreign Exchange Transaction Law of Korea and the decrees and regulations thereunder (“FETL”). Furthermore, the purchaser of the shares of common stock shall comply with all applicable regulatory requirements (including but not limited to requirements under the FETL) in connection with the purchase of the shares of common stock. By the purchase of the shares of common stock, the relevant holder thereof will be deemed to represent and warrant that if it is in Korea or is a resident of Korea, it purchased the shares of common stock pursuant to the applicable laws and regulations of Korea.

Notice to Prospective Investors in Saudi Arabia

This document may not be distributed in the Kingdom of Saudi Arabia except to such persons as are permitted under the Offers of Securities Regulations as issued by the board of the Saudi Arabian Capital Market Authority (“CMA”), pursuant to resolution number 2-11-2004 dated 4 October 2004 as amended by resolution number 1-28-2008, as amended (the “CMA Regulations”). The CMA does not make any representation as to the accuracy or completeness of this document and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of this document. Prospective purchasers of the shares of common stock offered hereby should conduct their own due diligence on the accuracy of the information relating to the securities. If you do not understand the contents of this document, you should consult an authorized financial adviser.

Notice to Prospective Investors in the Dubai International Financial Centre ("DIFC")

This document relates to an Exempt Offer in accordance with the Markets Rules 2012 of the Dubai Financial Services Authority ("DFSA"). This document is intended for distribution only to persons of a type specified in the Markets Rules 2012 of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus supplement nor taken steps to verify the information set forth herein and has no responsibility for this document. The shares of common stock to which this document relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the shares of common stock offered should conduct their own due diligence on the securities. If you do not understand the contents of this document, you should consult an authorized financial advisor.

In relation to its use in the DIFC, this document is strictly private and confidential and is being distributed to a limited number of investors and must not be provided to any person other than the original recipient, and may not be reproduced or used for any other purpose. The interests in the securities may not be offered or sold directly or indirectly to the public in the DIFC.

Notice to Prospective Investors in Bermuda

Shares of common stock may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

Notice to prospective investors in the British Virgin Islands

The shares of common stock are not being and may not be offered to the public or to any person in the British Virgin Islands for purchase or subscription by or on behalf of us. The shares of common stock may be offered to companies incorporated under the BVI Business Companies Act, 2004 (British Virgin Islands) (BVI Companies), but only where the offer will be made to, and received by, the relevant BVI Company entirely outside of the British Virgin Islands.

Notice to prospective investors in Taiwan

The shares of common stock have not been and will not be registered with the Financial Supervisory Commission of Taiwan pursuant to relevant securities laws and regulations and may not be sold, issued or offered within Taiwan through a public offering or in circumstances which constitutes an offer within the meaning of the Securities and Exchange Act of Taiwan that requires a registration or approval of the Financial Supervisory Commission of Taiwan. No person or entity in Taiwan has been authorized to offer, sell, give advice regarding or otherwise intermediate the offering and sale of the shares of common stock in Taiwan.

Notice to prospective investors in South Africa

Due to restrictions under the securities laws of South Africa, no "offer to the public" (as such term is defined in the South African Companies Act, No. 71 of 2008 (as amended or re-enacted) (the South African Companies Act), is being made in connection with the issue of the shares of common stock in South Africa. Accordingly, this document does not, nor is it intended to, constitute a "registered prospectus" (as that term is defined in the South African Companies Act) prepared and registered under the South African Companies Act and has not been approved by, and/or filed with, the South African Companies and Intellectual Property Commission or any

other regulatory authority in South Africa. The shares of common stock are not offered, and the offer shall not be transferred, sold, renounced or delivered, in South Africa or to a person with an address in South Africa, unless one or other of the following exemptions stipulated in section 96 (1) applies:

Section 96 (1) (a) the offer, transfer, sale, renunciation or delivery is to:

(i) persons whose ordinary business, or part of whose ordinary business, is to deal in securities, as principal or agent;

(ii) the South African Public Investment Corporation;

(iii) persons or entities regulated by the Reserve Bank of South Africa;

(iv) authorized financial service providers under South African law;

(v) financial institutions recognized as such under South African law;

(vi) a wholly-owned subsidiary of any person or entity contemplated in (iii), (iv) or (v), acting as agent in the capacity of an authorized portfolio manager for a pension fund, or as manager for a collective investment scheme (in each case duly registered as such under South African law); or

(vii) any combination of the person in (i) to (vi); or

Section 96 (1) (b) the total contemplated acquisition cost of the shares of common stock, for any single addressee acting as principal is equal to or greater than ZAR1,000,000 or such higher amount as may be promulgated by notice in the Government Gazette of South Africa pursuant to section 96(2)(a) of the South African Companies Act.

Information made available in this prospectus should not be considered as “advice” as defined in the South African Financial Advisory and Intermediary Services Act, 2002.

Notice to prospective investors in Malaysia

No prospectus or other offering material or document in connection with the offer and sale of the shares of common stock has been or will be registered with the Securities Commission of Malaysia (“Commission”), for the Commission’s approval pursuant to the Capital Markets and Services Act 2007. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares of common stock may not be circulated or distributed, nor may the shares of common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Malaysia other than (i) a closed end fund approved by the Commission; (ii) a holder of a Capital Markets Services License; (iii) a person who acquires the shares of common stock, as principal, if the offer is on terms that the shares of common stock may only be acquired at a consideration of not less than RM250,000 (or its equivalent in foreign currencies) for each transaction; (iv) an individual whose total net personal assets or total net joint assets with his or her spouse exceeds RM3 million (or its equivalent in foreign currencies), excluding the value of the primary residence of the individual; (v) an individual who has a gross annual income exceeding RM300,000 (or its equivalent in foreign currencies) per annum in the preceding twelve months; (vi) an individual who, jointly with his or her spouse, has a gross annual income of RM400,000 (or its equivalent in foreign currencies), per annum in the preceding twelve months; (vii) a corporation with total net assets exceeding RM10 million (or its equivalent in a foreign currencies) based on the last audited accounts; (viii) a partnership with total net assets exceeding RM10 million (or its equivalent in foreign currencies); (ix) a bank licensee or insurance licensee as defined in the Labuan Financial Services and Securities Act 2010; (x) an Islamic bank licensee or takaful licensee as defined in the Labuan Financial Services and Securities Act 2010; and (xi) any other person as may be specified by the Commission; provided that, in the each of the preceding categories (i) to (xi), the distribution of the shares of

common stock is made by a holder of a Capital Markets Services License who carries on the business of dealing in securities. The distribution in Malaysia of this prospectus is subject to Malaysian laws. This prospectus does not constitute and may not be used for the purpose of public offering or an issue, offer for subscription or purchase, invitation to subscribe for or purchase any securities requiring the registration of a prospectus with the Commission under the Capital Markets and Services Act 2007.

Notice to prospective investors in Qatar

The shares of common stock described in this prospectus have not been, and will not be, offered, sold or delivered, at any time, directly or indirectly in the State of Qatar in a manner that would constitute a public offering. This prospectus has not been, and will not be, registered with or approved by the Qatar Financial Markets Authority or Qatar Central Bank and may not be publicly distributed. This prospectus is intended for the original recipient only and must not be provided to any other person. It is not for general circulation in the State of Qatar and may not be reproduced or used for any other purpose.

LEGAL MATTERS

The validity of the shares of common stock offered by this prospectus will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts. Certain legal matters relating to this offering will be passed upon for the underwriters by Davis Polk & Wardwell LLP, New York, New York.

EXPERTS

The financial statements as of December 31, 2022 and 2021 and for the years then ended included in this Prospectus have been so included in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

In connection with their engagement, PricewaterhouseCoopers LLP ("PwC") notified us that a business relationship existed between a PwC member firm and a beneficial owner that has significant influence ("BOSI") over the Company, whereby the BOSI participated in an online platform operated and maintained by the PwC member firm and had access to dedicated space at the PwC member firm's physical location in which the BOSI and other business partners and innovators participated on such platform and/or within the physical location to exchange experiences and ideas, search for technologies, pose challenges to others to provide proposed solutions, make direct contacts and to meet virtually or in person.

The existence of this business relationship identified is inconsistent with SEC and PCAOB auditor independence rules provided in Rule 2-01 of Regulation S-X. The matter was resolved on June 7, 2023, upon the termination of the business relationship between the BOSI and the PwC member firm.

PwC provided an overview of the facts and circumstances surrounding the business relationship to our audit committee and management, including that the entity involved was a BOSI and not an affiliate of the Company, and other relevant facts. The PwC audit engagement team members did not participate in the PwC member firm's activities and engagements with the BOSI or any entity that is part of the PwC member firm's business relationship with the BOSI, and the business relationship was not quantitatively or qualitatively material to the PwC member firm or the BOSI.

Considering the facts presented, our audit committee and PwC have concluded that the business relationship would not impair PwC's application of objective and impartial judgment on any matters encompassed within the audit engagement performed by PwC for our consolidated financial statements as of and for the fiscal years ended December 31, 2022 and 2021, and the review for the interim periods for the six months ended June 30, 2023 and 2022, and that a reasonable investor with knowledge of all relevant facts and circumstances would conclude that PwC is capable of remaining objective and impartial with respect to the audit and reviews of the Company's consolidated financial statements.

CHANGES IN INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

On September 24, 2021, KPMG, LLP ("KPMG") was engaged as the independent registered public accounting firm to audit our consolidated financial statements for the fiscal year ended December 31, 2020 in accordance with auditing standards generally accepted in the United States.

During the two fiscal years ended December 31, 2020 and 2019 and the subsequent interim period through September 24, 2021 we did not consult with KPMG on (i) matters that involved the application of accounting principles to a specified transaction either completed or proposed, or the type of audit opinion that might be rendered on our consolidated financial statements, and neither a written report nor oral advice was provided to us that KPMG concluded was an important factor considered by us in reaching a decision as to any accounting, auditing or financial reporting issue, or (ii) any matter that was either the subject of a "disagreement" or a "reportable event" (as defined in Item 304(a)(1)(iv) and Item 304(a)(1)(v) of Regulation S-K and the related instructions, respectively).

On April 28, 2022, our audit committee dismissed KPMG as our independent registered public accounting firm.

KPMG has never issued an audit report on our consolidated financial statements.

During the two fiscal years ended December 31, 2021 and 2020, and the subsequent period through April 28, 2022, (1) there were no disagreements (as that term is used in Item 304(a)(1)(iv) of Regulation S-K and the related instructions) between us and KPMG on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of KPMG, would have caused KPMG to make reference thereto in a report on our financial statements for the year ended December 31, 2020 if a report were to be issued, and (2) there were no "reportable events" as such term is defined in Item 304(a)(1)(v) of Regulation S-K.

We have provided KPMG with a copy of the disclosures set forth under the heading "Changes in Independent Registered Public Accounting Firm" and have requested that KPMG furnish a letter addressed to the SEC stating whether or not KPMG agrees with such statements. A copy of the letter is filed as Exhibit 16.1 to the registration statement of which this prospectus forms a part.

On April 28, 2022, PwC was approved as the independent registered public accounting firm for the fiscal year ended December 31, 2021.

During the two most recent fiscal years ended December 31, 2021 and the subsequent interim period through April 28, 2022 we did not consult with PwC on (i) matters that involved the application of accounting principles to a specified transaction either completed or proposed, or the type of audit opinion that might be rendered on our consolidated financial statements, and neither a written report nor oral advice was provided to us that PwC concluded was an important factor considered by us in reaching a decision as to any accounting, auditing or financial reporting issue, or (ii) any matter that was either the subject of a "disagreement" or a "reportable event" (as defined in Item 304(a)(1)(iv) and Item 304(a)(1)(v) of Regulation S-K and the related instructions, respectively).

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1 (File Number 333-) under the Securities Act with respect to the common stock we are offering by this prospectus. This prospectus, which constitutes part of the registration statement, does not contain all of the information included in the registration statement. For further information pertaining to us and our common stock, you should refer to the registration statement and to its exhibits. Whenever we make reference in this prospectus to any of our contracts, agreements or other documents, the references are not necessarily complete, and you should refer to the exhibits attached to the registration statement for copies of the actual contract, agreement or other document.

Upon the completion of the offering, we will be subject to the informational requirements of the Exchange Act and will file annual, quarterly and current reports, proxy statements and other information with the SEC. You can read our SEC filings, including the registration statement, at the SEC's website at www.sec.gov. We also maintain a website at https://www.metagenomi.co and upon completion of the offering, you may access, free of charge, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to those reports, as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. The information contained in, or that can be accessed through, our website is not part of, and is not incorporated into, this prospectus.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Index to Consolidated Financial Statements as of December 2021 and 2022 and for the years ended December 31, 2021 and 2022:

Index to Unaudited Condensed Consolidated Financial Statements as of June 30, 2023 and for the six months ended June 30, 2022 and 2023:

Report of Independent Registered Public Accounting Firm

To the Board of Managers and Members of Metagenomi Technologies, LLC

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Metagenomi Technologies, LLC and its subsidiary (the "Company") as of December 31, 2022 and 2021, and the related consolidated statements of operations and comprehensive loss, of redeemable convertible preferred units and members' deficit, and of cash flows for the years then ended, including the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits of these consolidated financial statements in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP

San Jose, California
August 3, 2023

We have served as the Company's auditor since 2022.

Consolidated Balance Sheets

(in thousands, except units)

	December 31, 2021	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 39,296	$ 184,441
Available-for-sale marketable securities	68,858	177,690
Contract assets	—	1,274
Prepaid expenses and other current assets	762	3,494
Total current assets	108,916	366,899
Property and equipment, net	3,862	16,522
Long-term investments	6,417	7,806
Operating lease right-of-use assets	18,028	16,736
Other assets	669	450
Restricted cash	4,100	6,073
Total assets	$141,992	$ 414,486
Liabilities, redeemable convertible preferred units and members' deficit		
Current liabilities:		
Accounts payable	$ 1,354	$ 2,011
Income tax payable	—	1,536
Accrued expenses and other current liabilities	3,531	8,790
Current portion of operating lease liabilities	687	1,515
Collaboration advance	3,559	743
Deferred revenue	16,041	33,942
Total current liabilities	25,172	48,537
Convertible promissory note and accrued interest, net of discount	30,276	—
Non-current portion of operating lease liabilities	17,965	17,056
Collaboration advance, non-current	912	—
Deferred revenue, non-current	23,716	76,185
Other non-current liabilities	—	1,033
Total liabilities	98,041	142,811
Commitments and contingencies (Note 10)		
Redeemable convertible preferred units: 19,650,632 and 41,813,375 units authorized as of December 31, 2021 and 2022, respectively; 19,650,632 and 41,478,621 units issued and outstanding as of December 31, 2021 and 2022, respectively. Liquidation preference $76,669 and $347,335 as of December 31, 2021 and 2022, respectively	76,495	346,103
Members' deficit:		
Common units: 32,000,000 and 66,000,000 units authorized as of December 31, 2021 and 2022, respectively; 5,947,500 units issued and outstanding as of December 31, 2021 and 2022	26	26
Profits interests: 6,020,644 and 14,604,165 units authorized as of December 31, 2021 and 2022, respectively; 5,783,758 and 7,516,073 units issued and outstanding as of December 31, 2021 and 2022, respectively	547	2,509
Accumulated other comprehensive loss	(21)	(274)
Accumulated deficit	(33,096)	(76,689)
Total members' deficit	(32,544)	(74,428)
Total liabilities, redeemable convertible preferred units and members' deficit	$141,992	$ 414,486

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Operations and Comprehensive Loss

(in thousands, except units and per unit data)

	Years ended December 31,	
	2021	2022
Collaboration revenue	$ 243	$ 17,200
Operating expenses:		
Research and development	14,478	43,139
General and administrative	9,712	18,701
Total operating expenses	24,190	61,840
Loss from operations	(23,947)	(44,640)
Other income (expense)		
Interest expense	(302)	(98)
Interest income	43	3,419
Change in fair value of long-term investments	2,760	94
Other income, net	4	201
Total other income	2,505	3,616
Net loss before provision for income taxes	(21,442)	(41,024)
Provision for income taxes	—	(2,569)
Net loss	$ (21,442)	$ (43,593)
Other comprehensive loss:		
Unrealized loss on available-for-sale marketable securities, net	(21)	(253)
Other comprehensive loss	$ (21,463)	$ (43,846)
Net loss per unit attributable to common unitholders, basic and diluted	$ (3.77)	$ (7.34)
Weighted average common units outstanding, basic and diluted	5,691,431	5,938,654

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Redeemable Convertible Preferred Units and Members' Deficit

(in thousands, except units)

	Redeemable Convertible Preferred Units		Common Units		Profits Interests		Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Members' Deficit
	Units	Amount	Units	Amount	Units	Amount			
BALANCE—January 1, 2021	18,069,695	$ 66,547	5,947,500	$ 26	2,302,239	$ 172	$ -	$ (11,654)	$ (11,456)
Issuance of Series A-5 redeemable convertible preferred units, net of issuance costs of $52	1,580,937	9,948	-	-	-	-	-	-	-
Issuance of profits interests	–	–	–	–	3,550,854	–	–	–	–
Cancellation and forfeiture of profits interests	–	–	–	–	(69,335)	–	–	–	–
Unit-based compensation expense	–	–	–	–	–	375	–	–	375
Other comprehensive loss	–	–	–	–	–	–	(21)	–	(21)
Net loss	–	–	–	–	–	–	–	(21,442)	(21,442)
BALANCE—December 31, 2021	19,650,632	$ 76,495	5,947,500	$ 26	5,783,758	$ 547	$ (21)	$ (33,096)	$ (32,544)
Issuance of Series B redeemable convertible preferred units for cash, net of issuance costs of $697	12,446,876	144,304	–	–	–	–	–	–	–
Issuance of Series B redeemable convertible preferred units upon conversion of convertible note and accrued interest	2,607,387	30,374	–	–	–	–	–	–	–
Issuance of Series B-1 redeemable convertible preferred units, net of issuance costs of $361	6,773,726	94,930	–	–	–	–	–	–	–
Issuance of profits interests	–	–	–	–	2,763,356	–	–	–	–
Cancellation and forfeiture of profits interests	–	–	–	–	(1,031,041)	–	–	–	–
Unit-based compensation expense	–	–	–	–	–	1,962	–	–	1,962
Other comprehensive loss	–	–	–	–	–	–	(253)	–	(253)
Net loss	–	–	–	–	–	–	–	(43,593)	(43,593)
BALANCE—December 31, 2022	41,478,621	$346,103	5,947,500	$ 26	7,516,073	$ 2,509	$ (274)	$ (76,689)	$ (74,428)

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Cash Flows

(in thousands)

	Years ended December 31,	
	2021	**2022**
Cash flows from operating activities		
Net loss	$ (21,442)	$ (43,593)
Adjustments to reconcile net loss to net cash provided by operating activities		
Unit-based compensation expense	375	1,962
Depreciation and amortization	387	1,733
Loss on fixed assets write-off	—	282
Non-cash lease expense	937	1,292
Amortization of premiums and discounts on available-for-sale marketable securities, net	203	(1,129)
Amortization of non-cash collaboration revenue	—	(314)
Non-cash interest expense	302	98
Change in fair value of long-term investments	(2,760)	(94)
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(502)	(2,465)
Contract assets	—	(1,274)
Other assets	68	(173)
Accounts payable	695	721
Income tax payable	—	1,536
Deferred revenue and collaboration advance	44,228	65,661
Accrued expenses and other current liabilities	1,854	4,529
Operating lease liabilities	(88)	(81)
Other non-current liabilities	—	1,033
Net cash provided by operating activities	24,257	29,724
Cash flows from investing activities		
Purchases of property and equipment	(2,903)	(13,977)
Purchases of available-for-sale marketable securities	(69,258)	(214,850)
Purchases of long-term investments	(2,155)	—
Maturities and sales of available-for-sale marketable securities	—	106,627
Net cash used in investing activities	(74,316)	(122,200)
Cash flows from financing activities		
Proceeds from issuance of redeemable convertible preferred units, net of issuance costs	9,948	239,594
Proceeds from issuance of convertible promissory note, net of issuance costs	29,974	—
Net cash provided by financing activities	39,922	239,594
Net change in cash, cash equivalents and restricted cash	(10,137)	147,118
Cash, cash equivalents and restricted cash at the beginning of the period	53,533	43,396
Cash, cash equivalents and restricted cash at the end of the period	$ 43,396	$ 190,514
Reconciliation of cash, cash equivalents and restricted cash		
Cash and cash equivalents	$ 39,296	$ 184,441
Restricted cash	4,100	6,073
Cash, cash equivalents and restricted cash at the end of the period	$ 43,396	$ 190,514

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Cash Flows (Continued)

(in thousands)

	Years ended December 31,	
	2021	2022
Supplemental cash flow information		
Issuance of Series B redeemable convertible preferred units upon conversion of convertible promissory note and accrued interest	$ —	$ 30,374
Common shares of Affini-T received for collaboration revenue	$ —	$ 1,295
Operating lease right-of-use assets obtained in exchange for new lease liabilities	$ 18,659	$ —
Non-cash expense related to a lease modification	$ 2,059	$ —
Deferred finance issuance costs included in other assets	$ 143	$ —
Unpaid finance issuance costs included in accounts payable and accrued expenses	$ —	$ 360
Purchases of property and equipment included in accounts payable and accrued expenses	$ 725	$ 1,247

The accompanying notes are an integral part of these consolidated financial statements.

Notes to the consolidated financial statements

1. Description of business, organization and liquidity

Organization and business

Metagenomi Technologies, LLC ("Metagenomi"), together with its wholly owned subsidiary Metagenomi, Inc. ("Metagenomi Inc.") (together, the "Company") is a gene editing biotechnology company developing therapeutics by leveraging a toolbox of next-generation gene editing systems to accurately edit DNA.

Formation and group reorganizations

Metagenomi.co was incorporated in September 2016 in the State of Delaware and is headquartered in Emeryville, California. In September 2018, Metagenomi.co formed a subsidiary, Metagenomi Technologies, LLC, as its sole member. In November 2018, the two companies completed a reorganization where Metagenomi Technologies, LLC became the parent of Metagemoni.co. The reorganization was a transaction of entities under common control and did not change the group.

In December 2018, Metagenomi formed another wholly owned subsidiary, Metagenomi IP Technologies, LLC. Metagenomi IP Technologies, LLC did not have any operations except for the initial transfer of IP from Metagenomi.co and an ongoing license of its technology to Metagenomi.co. Key activities of Metagenomi were raising capital to support operations of Metagenomi.co.

In April 2020, Metagenomi.co changed its name to Metagenomi, Inc.

In December 2021, the group completed another tax-free reorganization, whereby Metagenomi IP Technologies, LLC merged with and into Metagenomi, Inc. As of December 31, 2022, the group consisted of two entities: Metagenomi Technologies, LLC and its subsidiary, Metagenomi Inc. Both 2018 and 2021 reorganizations were accounted as transactions under common control at historical carrying values.

Liquidity and going concern

The Company has incurred significant losses from operations since its inception. During the years ended December 31, 2021 and 2022, the Company incurred net losses of $21.4 million and $43.6 million, respectively. As of December 31, 2022, the Company had an accumulated deficit of $76.7 million.

The Company has historically financed its operations primarily through issuance of redeemable convertible preferred units, convertible promissory notes and its collaboration agreements with Moderna, Affini-T and Ionis (see Note 7). The Company expects to continue to incur substantial losses, and its ability to achieve and sustain profitability will depend on the successful development, approval, and commercialization of any product candidates it may develop, and on the achievement of sufficient revenue to support its cost structure. The Company may never achieve profitability and, unless and until it does, it will need to continue to raise additional capital. Management expects that existing cash and cash equivalents and available-for-sale marketable securities of $362.1 million as of December 31, 2022, will be sufficient to fund its current operating plan for at least the next 12 months from the date of issuance of these consolidated financial statements.

2. Summary of significant accounting policies

Basis of presentation

These consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP"). The accompanying consolidated financial statements

include the accounts of Metagenomi and Metagenomi Inc., a wholly owned subsidiary. All intercompany balances and transactions have been eliminated in consolidation.

Any reference in these notes to applicable guidance is meant to refer to the authoritative GAAP as found in the Accounting Standards Codification ("ASC") and Accounting Standards Updates ("ASU") of the Financial Accounting Standards Board ("FASB").

Use of estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of expenses during the reporting period. On an ongoing basis, the Company evaluates estimates and assumptions, including but not limited to those related to revenue recognition under its collaboration agreements, the fair value of its common and redeemable convertible preferred units, the fair value of derivative liabilities, unit-based compensation expense, accruals for research and development expenses, the fair value of long-term investments and convertible promissory notes in private companies, the valuation of deferred tax assets, and uncertain income tax positions. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from those estimates.

Segment and geographical information

The Company operates and manages its business as one reportable and operating segment, which is the business of developing next generation gene-editing technologies and therapies. The chief executive officer, who is the chief operating decision maker, reviews financial information on an aggregate basis for purposes of allocating resources and evaluating financial performance. All of the Company's long-lived assets are located in the United States.

Risks and uncertainties

The Company is subject to certain risks and uncertainties, including, but not limited to, changes in any of the following areas that the Company believes could have a material adverse effect on the future financial position or results of operations: the Company's ability to advance the development of its next generation gene-editing platform, timing and ability to advance any product candidates it may develop into and through pre-clinical and clinical development; costs and timelines associated with the manufacturing of clinical supplies of any product candidates the Company may develop; regulatory approval, market acceptance of, and reimbursement for any product candidates the Company may develop; performance of third-party vendors; competition from pharmaceutical or other gene-editing companies with greater financial resources or expertise; protection of intellectual property; litigation or claims against the Company based on intellectual property or other factors; and its ability to attract and retain employees necessary to support its growth.

The Company's business and operations may be affected by worldwide economic conditions, which may continue to be impacted by global macroeconomic challenges such as the effects of the ongoing geopolitical conflicts in Ukraine, tensions in U.S.-China relations, the COVID-19 pandemic, uncertainty in the markets, including disruptions in the banking industry, and inflationary trends. Fiscal year 2022 was marked by significant market uncertainty, increasing inflationary pressures. These market dynamics may continue into 2023 and these and similar adverse market conditions may negatively impact the Company's operations and financial position.

Cash and cash equivalents

Cash equivalents are defined as short-term, highly liquid investments with original maturities of 90 days or less at the date of purchase. As of December 31, 2021 and 2022, the Company's cash and cash equivalents consisted of deposit accounts and investments in money market funds.

Marketable securities

Investments with original maturities of greater than 90 days are classified as available-for-sale marketable securities on the consolidated balance sheets and consist primarily of U.S. Treasury, corporate debt obligations, commercial paper, government agency obligations and asset-backed securities. As the Company's entire investment portfolio is considered available for use in current operations, the Company classifies all investments as available-for-sale and as current assets, even though the stated maturity may be more than one year from the current consolidated balance sheets date. Available-for-sale securities are carried at fair value, with unrealized gains and losses reported in accumulated other comprehensive loss, which is a separate component of members' deficit in the consolidated balance sheets.

The amortized cost of securities is adjusted for amortization of premiums and accretion of discounts to maturity, which are both recorded to interest income in the consolidated statements of operations and comprehensive loss.

Changes in the fair value of available-for-sale securities are reflected within unrealized loss on available-for-sale marketable securities, net in the consolidated statements of operations and comprehensive loss. Realized gains and losses on the sale of securities are determined by specific identification of each security's cost basis. The Company regularly reviews its investment portfolio to determine if any security is impaired, which would require it to record an allowance for credit losses or an impairment charge in the period any such determination is made. In making this judgment, the Company evaluates, among other things, the extent to which the fair value of a security is less than its amortized cost, its intent to sell or whether it is more likely than not that the Company will be required to sell the security before recovery of its amortized cost basis, the financial condition of the issuer and any changes thereto, and, as necessary, the portion of a decline in fair value that is credit-related. This assessment could change in the future due to new developments or changes in assumptions related to any particular security. Realized gains and losses, allowances for credit losses and impairments on available-for-sale securities, if any, are recorded to interest expense, net in the consolidated statements of operations and comprehensive loss.

Long-term investments

The Company determines at the inception of each arrangement whether an investment or other interest is considered a variable interest entity ("VIE"). If the investment or other interest is determined to be a VIE, the Company evaluates whether it is considered the primary beneficiary. The primary beneficiary of a VIE is the party that meets both of the following criteria: (i) has the power to direct the activities that most significantly impact the VIE's economic performance; and (ii) has the obligation to absorb losses or the right to receive benefits from the VIE. For investments in VIEs in which the Company is considered the primary beneficiary, the assets, liabilities and results of operations of the VIE are included in the Company's consolidated financial statements. As of December 31, 2021 and 2022, there were no VIEs for which the Company was the primary beneficiary.

If the Company concludes that it exercises significant influence over an investees' operations, it may account for its investment either using the equity method of accounting or fair value method. The election to account for an investment at fair value is irrevocable unless an event occurs creating a new election date. If the

Company does not have a significant influence, it accounts for its investment at fair value and may elect to account for an equity security without a readily determinable fair value using the measurement alternative method. The measurement alternative method allows the Company to measure the equity investment at its cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. Changes in fair value and impairment losses are recognized as other income (expenses) in the consolidated statements of operations and comprehensive loss.

Restricted cash

Restricted cash of $4.1 million and $6.1 million as of December 31, 2021 and 2022, respectively, represents security deposits in the form of a letter of credit issued in connection with the Company's leases (see Note 10).

Concentration of credit risk

Cash and cash equivalents, marketable securities and investments in convertible promissory notes are financial instruments that potentially subject the Company to concentrations of credit risk. As of December 31, 2021 and 2022, cash consists of cash deposited with one financial institution, Silicon Valley Bank ("SVB"), and account balances exceed federally insured limits.

On March 10, 2023, SVB was closed by the California Department of Financial Protection and Innovation, which appointed the Federal Deposit Insurance Corporation ("FDIC") as receiver. On March 12, 2023 the FDIC transferred all deposits, both insured and uninsured, and substantially all assets from the former SVB to a newly created, full-service FDIC-operated "bridge bank", Silicon Valley Bridge Bank, N.A. ("SVBB") and the FDIC, Treasury Department, and Federal Reserve announced that all deposits will be fully protected, whether or not they had been insured by the FDIC. On March 27, 2023, First-Citizens Bank & Trust Company assumed all of SVBB's customer deposits and certain other liabilities and acquired substantially all of SVBB's loans and certain other assets from the FDIC. As of the date of the issuance of these consolidated financial statements, the Company has full access to and control over all its cash, cash equivalents and available-for-sale marketable securities.

The Company also has investments in money market funds, U.S. Treasuries, corporate debt obligations, commercial paper, government agency obligations and asset-backed securities, which can be subject to certain credit risks. The Company mitigates the risks by investing in high-grade instruments, limiting its exposure to any one issuer and monitoring the ongoing creditworthiness of the financial institutions and issuers. The Company has not experienced any losses on its financial instruments.

Concentration of collaboration revenue and contract assets

The following table summarizes the percentages of collaboration revenues and of contract assets from each of the Company's customers that individually accounted for 10% or more of its collaboration revenues:

	Collaboration revenue		Contract assets
	Year ended December 31,		December 31,
	2021	2022	2022
Customer A	100%	84%	—
Customer B	—	15%	100%
	100%	99%	100%

The Company reviews its contract assets for impairment. No contract asset impairment was recorded as of December 31, 2022.

Fair value measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The carrying amounts of cash equivalents, prepaid expenses and other current assets, accounts payable, accrued expenses and other liabilities, approximate fair value due to their short-term maturities. Financial instruments, such as money market funds, marketable securities and certain equity and long-term investments are measured at fair value at each reporting date (see Note 3).

Deferred finance issuance costs

Deferred finance issuance costs, consisting of legal fees relating to in-process equity financings or offerings are capitalized. The deferred finance issuance costs will be offset against offering proceeds upon the completion of the financing or the offering. In the event the financing or the offering is terminated or delayed, deferred finance issuance costs will be expensed immediately as a charge to general and administrative expenses in the consolidated statements of operations and comprehensive loss. As of December 31, 2021, the Company capitalized and recorded $0.1 million in issuance costs related to its Series B preferred unit financing in other assets in the consolidated balance sheets, which closed in January 2022. There were no deferred finance issuance costs as of December 31, 2022.

Property and equipment, net

Property and equipment are recorded at cost, less accumulated depreciation and amortization. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, generally three to five years, and leasehold improvements are amortized over the shorter of the lease term or the estimated useful life of the asset. Repairs and maintenance expenditures, which are not considered improvements and do not extend the useful life of property and equipment, are expensed as incurred. When assets are retired or otherwise disposed of, the cost and related accumulated depreciation and amortization are removed from the consolidated balance sheets and the resulting gain or loss is reflected in the consolidated statements of operations and comprehensive loss in the period realized.

Leases

The Company determines whether an arrangement is or contains a lease at the inception of the arrangement and whether such a lease should be classified as a financing lease or operating lease at the commencement date of the lease. Leases with a term greater than one year are recognized on the consolidated balance sheets as operating right-of-use asset (“ROU asset”) and operating lease liabilities. We elected not to recognize the right-of-use assets and lease liabilities for leases with lease terms of one year or less (short-term leases). Lease liabilities and their corresponding ROU assets are recorded based on the present value of lease payments over the lease term. The Company considers the lease term to be the noncancelable period that it has the right to use the underlying asset, together with any periods where it is reasonably certain it will exercise an option to extend (or not terminate) the lease. As the interest rate implicit in the Company’s lease contracts is not readily determinable, the Company utilizes its incremental borrowing rate (“IBR”) based on the information available at the commencement date to determine the present value of lease payments.

Rent expense for operating leases is recognized on a straight-line basis over the lease term. The Company has elected to not separate lease and non-lease components for its real estate leases and instead accounts for each

separate lease component and the non-lease components associated with that lease component as a single lease component. Variable lease payments are recognized as incurred.

As of December 31, 2021 and 2022, the Company had no finance leases.

Impairment of long-lived assets

The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability is measured by comparing the carrying amount to the future undiscounted net cash flows which the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the assets exceeds the projected discounted future net cash flows generated by the assets. There have been no such impairments of long-lived assets in the years ended December 31, 2021 and 2022.

Redeemable convertible preferred units

The Company records redeemable convertible preferred units at their respective fair values on the dates of issuance, net of issuance costs. The redeemable convertible preferred units are recorded outside of permanent equity because while it is not mandatory, redemption is contingent upon the occurrence of certain events considered not solely within the Company's control. The Company has not adjusted the carrying values of the redeemable convertible preferred units to the liquidation preferences of such units because it is uncertain whether or when a deemed liquidation event would occur that would obligate the Company to pay the liquidation preferences to holders of redeemable convertible preferred units. Subsequent adjustments to the carrying values to the liquidation preferences will be made only when it becomes probable that such a deemed liquidation event will occur.

Collaboration arrangements and revenue recognition

At the inception of an agreement, the Company evaluates if an agreement is a collaborative arrangement within the scope of ASC 808, *Collaborative Arrangements* ("ASC 808"). For collaborative arrangements that fall within the scope of ASC 808, the Company first determines which elements of the collaboration are deemed to be a performance obligation with a customer within the scope of ASC Topic 606, *Revenue from Contracts with Customers* ("ASC 606"). For elements of collaboration arrangements that are accounted for pursuant to ASC 808 and are not subject to the guidance in ASC 606, the Company applies the revenue recognition model under ASC 606 or other guidance, as deemed appropriate.

The Company re-evaluates whether the license agreement continues to be a collaborative arrangement, or whether the license agreement becomes a collaborative arrangement, whenever there is a change in either the roles of the participants in the arrangement or the participants' exposure to significant risks and rewards dependent on the ultimate commercial success of the endeavor.

Under ASC 606, the Company recognizes revenue when the Company's customer obtains control of promised goods or services, in an amount that reflects the consideration which the Company expects to receive in exchange for those goods and services. To determine revenue recognition for arrangements within the scope of ASC 606, the Company performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price, including the constraint on variable consideration; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when or as the Company satisfies a performance obligation.

The Company's revenue is primarily derived through its license, research, development and option agreements. These agreements may include the following types of promised goods or services: (i) grants of licenses,

(ii) performance of research and development services, and (iii) participation on joint research and/or development committees. They also may include options to obtain licenses to the Company's intellectual property or to extend the term of the research activities. Payments to the Company under these arrangements typically include one or more of the following: non-refundable upfront payments; reimbursement for research services; research, development or regulatory milestone payments; profit-sharing arrangements; and royalty and commercial sales milestone payments. The event-based milestone payments, royalties and cost reimbursements represent variable consideration. The Company evaluates the probability that the event-based milestones will be achieved and estimates the amount to be included in the transaction price using the most likely amount method. The Company includes cost reimbursement in the transaction price using the expected value method.

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the unit of account in ASC 606. The Company allocates the total transaction price, including variable consideration that is not constrained, to each performance obligation based on the estimated standalone selling price and recognizes revenue when, or as, the performance obligation is satisfied. Amounts of variable consideration are included in the transaction price to the extent that it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur. At the end of each reporting period, the Company re-evaluates the estimated variable consideration included in the transaction price and any related constraint, and if necessary, adjusts its estimate of the overall transaction price.

The Company's collaboration and license agreements include contingent payments related to sales-based milestones and royalties. Sales-based milestones and royalties are typically payable when annual sales of a covered product reach specified levels and sales occur. When intellectual property license is determined to be a predominant promise in the arrangement, sales-based milestones and royalties are recognized at the later of when the associated performance obligation has been satisfied or when the sales occur. Unlike other contingency payments, such as regulatory milestones, sales-based milestones and royalties are not included in the transaction price based on estimates at the inception of the contract, but rather, are included when the sales or usage occur.

In cases when upfront payment contains a material right for the optional services the Company may provide in the future, the material right is treated as a separate performance obligation. The value allocated to such material right is deferred and recognized as revenue when the performance obligation is satisfied, and the optional services are provided, or when the right expires.

Contract assets and contract liabilities

A contract asset is a right to consideration in exchange for goods or services that the Company has transferred to a customer when that right is conditional and is not just subject to the passage of time. A receivable is recorded on the consolidated balance sheets when the Company has unconditional rights to consideration. As of December 31, 2022, the contract asset balance of $1.3 million related to revenue recognized and unbilled under the Affini-T Agreement (Note 7).

A contract liability is an obligation to transfer goods or services for which the Company has received consideration, or for which an amount of consideration is due from the customer. Contract liabilities consist of deferred revenue and relate to amounts invoiced to, or advance consideration received from, licensees that precede the Company's satisfaction of the associated performance obligations. The Company's deferred revenue primarily results from upfront payments received relating to the performance obligations that are satisfied over time under the Company's revenue arrangements (Note 7).

The Company's contract balances are reported in a net contract asset or liability position on a contract-by-contract basis at the end of each reporting period. Changes in the contract assets and the contract

liabilities balances during the period are the result of the issuance of invoices, receipts of non-refundable upfront payments and recognition of deferred revenues.

Research and development expenses

Research and development costs are expensed as incurred. Research and development costs include salaries, unit-based compensation, and benefits for employees performing research and development activities, an allocation of facility and overhead expenses, expenses incurred under agreements with consultants, third-party organizations and vendors that conduct research and pre-clinical activities, regulatory support activities, manufacturing process development activities and provide supplies.

Research and development expenses accruals are estimated based on the level of services performed, progress of the work orders, including the phase or completion of events, and contracted costs. The estimated costs of research and development services provided, but not yet invoiced, are included in accrued expenses and other current liabilities in the consolidated balance sheets. If the actual timing of the performance of services or the level of effort varies from the original estimates, the Company will adjust the accrual accordingly. To date, there have been no material differences between estimates of such expenses and the amounts actually incurred.

Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are capitalized and recorded in prepaid expenses and other current assets, and then expensed as the related goods are delivered or the services are performed.

Patent costs

All patent-related costs incurred in connection with filing and prosecuting patent applications are expensed as incurred due to the uncertainty of the recovery of the expenditure. Amounts incurred are classified as general and administrative expenses in the consolidated statements of operations and comprehensive loss.

Unit-based compensation expense

The Company's unit-based equity awards include issuance of profits interests that are granted to employees and consultants under the 2019 Equity Incentive Plan. Profits interests usually vest over four years and are a separate class of equity with defined rights within the LLC Agreement. A profits interest is an interest in the increase in the value of the Company over the threshold amount, as determined at the time of grant on a per unit basis. The holder, therefore, has the right to participate in distributions of profits only in excess of the threshold amount. The threshold amount is based on the valuation of the common units on or around the grant date.

The Company accounts for profits interests granted in accordance with ASC 718, *Compensation-Stock Compensation* (ASC 718). In accordance with ASC 718, compensation expense is measured at the estimated fair value of the profits interest using the Black-Scholes option-pricing model and is included as compensation expense over the vesting period during which an employee or a consultant provides service in exchange for the award. Unit-based compensation expense is recognized over the awards' vesting period on a straight-line basis and recorded as either research and development or general and administrative expenses in the consolidated statements of operations and comprehensive loss based on the function to which the related services are provided. Forfeitures are accounted for as they occur.

Income taxes

Metagenomi is taxed under the provisions of Sub chapter K- Partners and Partnerships of the Internal Revenue Code. Under those provisions, Metagenomi does not pay federal or state corporate income taxes on its taxable income. Instead, each member includes net operating income or loss for Metagenomi on its individual return.

Metagenomi Inc. uses the liability method to account for income taxes. Under this method, deferred tax assets and liabilities are determined based on differences between the financial statement carrying amounts of existing assets and liabilities and their tax bases. Deferred tax assets and liabilities are measured using enacted tax rates applied to taxable income in the years in which those temporary differences are expected to be recovered or settled. A valuation allowance is established when necessary to reduce deferred tax assets to the amount expected to be realized.

Metagenomi Inc. assesses the likelihood of deferred tax assets being realized. It provides a valuation allowance when it is more likely than not that some portion or all of a deferred tax asset will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which the temporary differences representing net future deductible amounts become deductible.

Tax benefits related to uncertain tax positions are recognized when it is more likely than not that a tax position will be sustained during an audit. Tax positions that meet the more-likely-than-not threshold are measured at the largest amount of tax benefit that is greater than 50% likely of being realized upon settlement with the taxing authority. Interest and penalties related to unrecognized tax benefits are included within the provision for income tax.

Net loss per unit

The Company calculates basic and diluted net loss per unit in conformity with the two-class method required for participating securities. Under the two-class method, basic net loss per unit is computed by dividing the net loss by the weighted average number of common units outstanding during the period, without consideration of potentially dilutive securities. Diluted net loss per unit is computed by dividing the net loss by the sum of the weighted average number of common units outstanding during the period plus the dilutive effects of potentially dilutive securities outstanding during the period. Potentially dilutive securities include incentive units, unvested restricted common units and redeemable convertible preferred units. The dilutive effect of incentive units and unvested restricted common units is computed using the treasury stock method and the dilutive effect of redeemable convertible preferred units is calculated using the if-converted method. For all periods presented, diluted net loss per unit is the same as basic net loss per unit since the effect of including potential dilutive securities is anti-dilutive and incentive units' participation thresholds were not met.

Comprehensive loss

Comprehensive income (loss) is defined as a change in equity of a business enterprise during a period resulting from transactions from non-owner sources. The Company's other comprehensive income (loss) is comprised solely of unrealized gains (losses) on available-for-sale marketable securities. The Company has not recorded any reclassifications from other comprehensive income (loss) to net loss during the periods presented.

Recently issued accounting pronouncements

The Company noted no recently issued accounting pronouncements that will impact its consolidated financial statements and were not adopted by the Company. No new accounting pronouncements were adopted during the year ended December 31, 2022.

3. Fair value measurements

Assets and liabilities recorded at fair value on a recurring basis in the consolidated balance sheets, are categorized based upon the level of judgment associated with inputs used to measure their fair values. The accounting guidance for fair value provides a framework for measuring fair value and requires certain

disclosures about how fair value is determined. The accounting guidance establishes a three-level valuation hierarchy that prioritizes the inputs to valuation techniques used to measure fair value based upon whether such inputs are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect market assumptions made by the reporting entity. The three-level hierarchy for the inputs to valuation techniques is briefly summarized as follows:

Level 1 — Inputs are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date;

Level 2 — Inputs are observable, unadjusted quoted prices in active markets for similar assets or liabilities, unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the related assets or liabilities; and

Level 3 **—** Unobservable inputs that are significant to the measurement of the fair value of the assets or liabilities that are supported by little or no market data.

Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. An assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability. Changes in the ability to observe valuation inputs may result in a reclassification of levels of certain securities within the fair value hierarchy. The Company recognizes transfers into and out of levels within the fair value hierarchy in the period in which the actual event or change in circumstances that caused the transfer occurs.

The Company's financial instruments measured at fair value on a recurring basis consist of Level 1, Level 2, and Level 3 financial instruments. Usually, marketable securities are considered Level 2 when their fair values are determined using inputs that are observable in the market or can be derived principally from or corroborated by observable market data such as pricing for similar securities, recently executed transactions, cash flow models with yield curves, and benchmark securities. In addition, Level 2 financial instruments are valued using comparisons to like-kind financial instruments and models that use readily observable market data as their basis. U.S. Government bonds, corporate debt obligations, commercial paper, government agency obligations and asset-backed securities are valued primarily using market prices of comparable securities, bid/ask quotes, interest rate yields and prepayment spreads and are included in Level 2.

Financial assets and liabilities are considered Level 3 when their fair values are determined using pricing models, discounted cash flow methodologies, or similar techniques, and at least one significant model assumption or input is unobservable. The Company's investments in a convertible promissory note, preferred stock shares and restricted common stock of Affini-T Therapeutics Inc. ("Affini-T") (see Note 5) are Level 3 financial assets.

The following table summarizes the estimated fair value of the financial instruments that were measured at fair value on a recurring basis by level within the fair value hierarchy as of December 31, 2021 (in thousands):

	December 31, 2021			
	Total	Level 1	Level 2	Level 3
Assets:				
Money market funds (included in cash and cash equivalents)	$ 34,940	$34,940	$ —	$ —
U.S. Treasury bills	2,989	2,989	—	—
Government agency obligations	3,028	—	3,028	—
Corporate debt obligations	20,070	—	20,070	—
Commercial paper	29,719	—	29,719	—
Asset-backed securities	13,052	—	13,052	—
Long-term investments (Note 5)	4,262	—	—	4,262
Total fair value of assets	$108,060	$37,929	$65,869	$4,262

In addition, restricted cash of $4.1 million as of December 31, 2021, collateralized by the Company's cash equivalents, are financial assets measured at fair value and is a Level 1 financial instruments under the fair value hierarchy.

The following table summarizes the estimated fair value of the financial instruments that were measured at fair value on a recurring basis by level within the fair value hierarchy as of December 31, 2022 (in thousands):

	December 31, 2022			
	Total	Level 1	Level 2	Level 3
Assets:				
Money market funds (included in cash and cash equivalents)	$ 182,441	$ 182,441	$ —	$ —
U.S. Treasury bills	14,821	14,821	—	—
U.S. Government bonds	14,651	—	14,651	—
Government agency obligations	22,468	—	22,468	—
Corporate debt obligations	25,900	—	25,900	—
Commercial paper	88,447	—	88,447	—
Asset-backed securities	11,403	—	11,403	—
Long-term investments (Note 5)	5,651	—	—	5,651
Total fair value of assets	$ 365,782	$ 197,262	$ 162,869	$ 5,651

In addition, restricted cash of $6.1 million as of December 31, 2022, collateralized by the Company's cash equivalents, are financial assets measured at fair value and is a Level 1 financial instruments under the fair value hierarchy.

In December 2020, the Company entered into a convertible promissory note agreement and a side letter with Affini-T (see Note 5), and recorded an aggregate $1.5 million investment in Affini-T within long-term investments on the consolidated balance sheet related to (i) the Affini-T Convertible Promissory Note and (ii) shares of Affini-T's common stock. The Company concluded it exercised significant influence over Affini-T, and the Company elected the fair value method to account for the investment in Affini-T. The fair value of

common stock shares was estimated by the Company's management, considering the most recent third-party valuation, which was based on an option-pricing model and Affini-T's most recent round of financing.

During the year ended December 31, 2021, the Company recognized an aggregate $2.8 million change in fair value of its investment in Affini-T within the change in fair value of long-term investments in the consolidated statement of operations and comprehensive loss consisting of a $2.5 million change in fair value of the Affini-T Convertible Promissory Note and a $0.3 million change in fair value of the shares of Affini-T common stock. As of December 31, 2021, the aggregate fair value of the Company's investment in Affini-T was $4.3 million, of which $4.0 million related to the Affini-T Convertible Promissory Note and $0.3 million related to the shares of Affini-T common stock.

In March 2022, the Company's investment in the Affini-T Convertible Promissory Note was converted into shares of convertible preferred stock, resulting in no convertible note outstanding as of December 31, 2022 (see Note 5). The fair value of the convertible preferred stock shares was based on cash paid per share by third party investors. During the year ended December 31, 2022, the Company recognized a change in fair value of the Affini-T Convertible Promissory Note of $0.1 million within the change in fair value of long-term investments in the consolidated statement of operations and comprehensive loss. There was no change in the fair value of the shares of Affini-T common stock during the year ended December 31, 2022.

As of December 31, 2021, the fair value of the Affini-T Convertible Promissory Note was estimated using the fair value of preferred stock using Affini-T's recent valuation and future payments discounted at a rate of 6%. As of the date of the conversion, the fair value was estimated as $4.1 million, which was the fair value of the convertible preferred stock issued upon the conversion and as of December 31, 2022.

There were no transfers between Level 1 and Level 2 categories in the years ended December 31, 2021 and 2022. As of December 31, 2021 and 2022, the Company's investments in Affini-T were accounted as Level 3 investments and recorded at fair value.

4. Available-for-sale marketable securities

The following table summarizes the amortized cost, unrealized gains (losses) and estimated fair value of the available-for-sale marketable securities as of December 31, 2021 (in thousands):

	Amortized cost	Unrealized gains	Unrealized losses	Estimated fair value
Money market funds	$ 34,940	$ —	$ —	$ 34,940
U.S. Treasury obligations	2,989	—	—	2,989
Government agency obligations	3,031	—	(3)	3,028
Corporate debt obligations	20,083	—	(13)	20,070
Commercial paper	29,719	—	—	29,719
Asset-backed securities	13,057	—	(5)	13,052
Total	103,819	—	(21)	103,798
Less: amounts classified as cash equivalents	(34,940)	—	—	(34,940)
Total available-for-sale marketable securities	$ 68,879	$ —	$ (21)	$ 68,858

The following table summarizes the amortized cost, unrealized gains (losses) and estimated fair value of the available-for-sale marketable securities as of December 31, 2022 (in thousands):

	Amortized cost	Unrealized gains	Unrealized losses	Estimated fair value
Money market funds	$ 182,441	$ —	$ —	$ 182,441
U.S. Treasury bills	14,818	3	—	14,821
U.S. Government bonds	14,720	—	(69)	14,651
Government agency obligations	22,431	41	(4)	22,468
Corporate debt obligations	26,041	10	(151)	25,900
Commercial paper	88,447	—	—	88,447
Asset-backed securities	11,508	—	(105)	11,403
Total	360,406	54	(329)	360,131
Less: amounts classified as cash equivalents	(182,441)	—	—	(182,441)
Total available-for-sale marketable securities	$ 177,965	$ 54	$ (329)	$ 177,690

As of December 31, 2021 and 2022, no significant facts or circumstances were present to indicate a deterioration in the creditworthiness of the issuers of the available-for-sale securities, and the Company has no requirement or intention to sell these securities before maturity or recovery of their amortized cost basis. The Company considered the current and expected future economic and market conditions and determined that its investments were not significantly impacted. For all securities with a fair value less than its amortized cost basis, the Company determined the decline in fair value below amortized cost basis to be immaterial and non-credit related, and therefore no allowance for losses has been recorded. During the years ended December 31, 2021 and 2022, the Company did not recognize any impairment losses on its investments.

The Company's policy is to exclude the applicable accrued interest from both the fair value and the amortized cost basis of its available-for-sale securities for purposes of identifying and measuring an impairment. The Company presents accrued interest receivable related to the available-for-sale securities in prepaid expenses and other current assets, separate from available-for-sale marketable securities in the consolidated balance sheets. As of December 31, 2021 and 2022, accrued interest receivable was $0.2 million and $0.3 million, respectively. The Company's accounting policy is to not measure an allowance for credit losses for accrued interest receivables and to write-off any uncollectible accrued interest receivable as a reversal of interest income in a timely manner, which it considers to be in the period in which the Company determines the accrued interest will not be collected. The Company has not written off any accrued interest receivables for the years ended December 31, 2021 and 2022.

The amortized cost and fair value of available-for-sale marketable securities by contractual maturity were as follows as of December 31, 2021 (in thousands):

	Amortized cost	Estimated fair value
Maturing within one year	$ 67,318	$ 67,298
Maturing in one to five years	1,561	1,560
Total available-for-sale marketable securities	$ 68,879	$ 68,858

The amortized cost and fair value of available-for-sale marketable securities by contractual maturity were as follows as of December 31, 2022 (in thousands):

	Amortized cost	Estimated fair value
Maturing within one year	$ 163,259	$ 163,030
Maturing in one to five years	14,706	14,660
Total available-for-sale marketable securities	$ 177,965	$ 177,690

5. Long-term investments

Affini-T investment

In December 2020, the Company entered into a convertible promissory note agreement and a side letter with Affini-T, a private biotechnology company. The Company participated with other investors in Affini-T's convertible notes financing and paid cash of $1.5 million as a principal amount of a convertible promissory note with 6% annual interest and maturity in December 2021. The Affini-T Convertible Promissory Note was convertible in Affini-T's next qualifying round of financing at a conversion price equal to the lesser of (i) 85% of the price per share paid by other investors (or 80% if the qualified financing occurs after June 24, 2021) or (ii) the price per share obtained by dividing $30.0 million by the number of shares of common stock of Affini-T outstanding immediately prior to the qualified financing. In accordance with the side letter, the Company was engaged to perform the testing of its gene editing system to knock-in T-cell receptor ("TCR") targets in primary T-cells as selected by Affini-T. As consideration for services, the Company received 1,867,300 shares of restricted common stock of Affini-T, of which 10% of the shares vested on the issuance date and 90% shares were subject to forfeiture if no gene editing licensing agreement was finalized between the Company and Affini-T by October 31, 2021. Effective November 1, 2021, 1,653,570 shares of restricted common stock issued to the Company were forfeited and cancelled as a license agreement was not signed between the parties.

In March 2022, Affini-T closed a qualifying round of financing, and the Affini-T Convertible Promissory Note and accrued interest were converted into 527,035 Series A convertible preferred stock shares of Affini-T. The Company accounted for its investments in the Affini-T Convertible Promissory Note and convertible preferred stock at fair value (see Note 3).

The Company performed a VIE analysis and concluded that it was not a primary beneficiary of Affini-T. The Company concluded that it exercised significant influence over Affini-T until November 2021, when shares of restricted common stock were forfeited and the Company's former chief business officer, who was also the founder and chief executive officer of Affini-T, resigned. The Company accounted for its investment in 213,730 shares of Affini-T common stock at fair value of $0.3 million for each of the periods ending December 31, 2021 and 2022 (see Note 3).

In June 2022, the Company entered into a Development, Option and License Agreement with Affini-T to perform research and development activities (see Note 7). The Company received an upfront equity consideration of 719,920 shares of Affini-T's common stock with an estimated fair value of $1.3 million in June 2022. The fair value of common shares was estimated by the Company's management, considering the most recent third-party valuation. No impairment loss was recognized on the Company's investment in Affini-T as of December 31, 2021 and 2022.

ViTToria investment

The Company purchased 603,262 Series Seed-2 convertible preferred stock shares of ViTToria Biotherapeutics, Inc. ("Vittoria"), a private biotechnology company, for a total of $2.2 million cash in July and December 2021.

During the years ended December 31, 2021 and 2022, the Company did not have a board seat and owned less than 20% of outstanding voting shares of Vittoria. The investment in Vittoria does not provide the Company the ability to control or have significant influence over Vittoria's operations. The Company accounted for the investment in Vittoria's Series Seed-2 convertible preferred stock using the measurement alternative method. The fair value of the investment was estimated by management using per share price of $3.57, which was the price paid for convertible preferred stock shares by other investors. As of December 31, 2021 and 2022, the carrying value of Vittoria's investment was $2.2 million and no impairment was recognized.

6. Consolidated balance sheets components

Property and equipment, net consists of the following (in thousands):

		December 31,	
	Useful life	2021	2022
Laboratory equipment	5	$3,029	$13,455
Leasehold improvements	lesser of useful life or the lease term	293	3,531
Furniture and fixtures	3	190	328
Computers and related equipment	3	16	54
Construction in progress		887	1,402
Total property and equipment		4,415	18,770
Less: Accumulated depreciation and amortization		(553)	(2,248)
Total property and equipment, net		$3,862	$16,522

The depreciation and amortization expense was $0.4 million and $1.7 million for the years ended December 31, 2021 and 2022, respectively.

Prepaid expenses and other current assets consist of the following (in thousands):

	December 31,	
	2021	2022
Payroll tax credit	$300	$ 289
Interest receivable on available-for-sale marketable securities	190	261
Prepaid research and development expenses	—	685
Grant income receivable	—	125
Other prepaid expenses and other current assets	272	2,134
Total prepaid expenses and other current assets	$762	$3,494

Other assets consist of the following (in thousands):

	December 31,	
	2021	2022
Operating lease deposit	$276	$ 237
Prepaid property and equipment	250	—
Long-term prepaid services	—	213
Deferred finance issuance costs	143	—
Total other assets	$669	$ 450

Accrued expenses and other current liabilities consist of the following (in thousands):

	December 31,	
	2021	2022
Accrued personnel related expenses	$2,244	$4,819
Accrued legal and professional services	414	1,200
Accrued purchases of property and equipment	382	896
Accrued research and development expenses	147	1,684
Other accrued liabilities	344	191
Total accrued expenses and other current liabilities	$3,531	$8,790

7. Significant agreements

Moderna strategic collaboration and license agreement

Terms of the agreement

On October 29, 2021, the effective date, the Company entered into a Strategic Collaboration and License Agreement (the "Moderna Agreement") with ModernaTX, Inc. ("Moderna"). The parties will collaborate on the research and development of *in vivo* genome editing therapies directed at certain targets and the commercialization of such genome editing therapies. The collaboration provides Moderna with exclusive access to the Company's technology platform during the research period in (1) the field of *in vivo* gene editing technology for a therapeutic, ameliorative or prophylactic application by way of knock-out through InDel formation or base editing or insertion of an exogenous DNA template (such field, "DT Field") and (2) the field of *in vivo* gene editing technology for a therapeutic, ameliorative or prophylactic application outside the use of (a) DNA donor templates and (b) no exogenous template at all but including (c) correction by base editing (such field, "RT Field"). The parties formed a joint steering committee, a joint research subcommittee and a joint patent subcommittee to oversee the collaboration activities.

Under the terms of the Moderna Agreement, the parties will collaborate on one or more programs in the RT Field (the "Moderna RT program") and two programs in the DT Field (the "Moderna DT program" and the "DT Co-Co program").

With respect to the Moderna RT and Moderna DT programs, the parties will collaborate on the research and development of product candidates under the approved research plans. The initial research term of the Moderna RT program is four years, which may be extended by Moderna for an additional three years upon written notice and a payment of extension fees. The initial research term of the Moderna DT program is four years. The Company granted to Moderna an option to obtain an exclusive license to develop, manufacture and commercialize up to ten Moderna RT program candidates and up to two Moderna DT program candidates at any time during the research term and prior to filing of an investigational new drug ("IND") application with the Food Drug and Administration ("FDA") or any similar application filed with a regulatory authority in a country other than the United States ("U.S."), subject to Moderna's payment of an option exercise fee of $10.0 million per target.

With respect to the DT Co-Co program, the parties will work together on the co-development and commercialization of products and share costs and profits equally. The Company maintains commercialization rights in the U.S. (subject to Moderna's right to appoint up to 50% of the U.S. sales force for the DT Co-Co program), while Moderna maintains these rights in countries other than the U.S. The initial research term for the DT Co-Co program is four years, and each party has a right to opt-out of the DT Co-Co program at any time, at which point the other party has the right to solely continue the development and commercialization activities. If there is no development candidate nomination by the end of the initial research term, the DT Co-Co program will expire, unless the parties have mutually agreed to continue the program.

During the year ended December 31, 2021, the Company received a non-refundable upfront payment of $40.0 million and a $5.0 million payment for the first year of research costs. Concurrent with the Moderna Collaboration Agreement, Moderna also provided $30.0 million in cash in the form of a convertible promissory note (see Note 9) pursuant to a convertible promissory note agreement dated October 29, 2021 (the “Moderna Convertible Promissory Note Agreement”). Moderna will reimburse the Company up to $5.0 million in annual research and development costs related to the Moderna DT and Moderna RT programs, or up to the agreed amount of expenses per the budget.

For the Moderna RT and Moderna DT programs, the Company is eligible to receive (i) technology milestone fees related to the achievement of certain preclinical research objectives of up to $75.0 million, (ii) development and regulatory milestones of up to $100.0 million per target, (iii) sales milestones of up to $200.0 million per target, and (iv) royalties ranging from a mid-single digit to a low-teens percentage of annual net sales of a licensed product. Any profits and losses from the co-development and commercialization of the DT Co-Co program are shared equally between the Company and Moderna. With respect to the DT Co-Co program for which the opt-out party has exercised its opt-out right, the continuing party will pay to the opt-out party, certain development, regulatory and sales milestone payments that will not exceed an aggregate $239.0 million per DT Co-Co target, and opt-out royalties ranging from a high-single digit to a low-teens percentage of annual net sales of a licensed product.

The term of the Moderna Agreement will continue on a licensed product-by-licensed product and country-by-country basis, until the expiration of the applicable royalty term. The royalty term commences on the first commercial sale of a licensed product and terminates on the latest of: (a) the expiration or abandonment of the last valid claim of a patent within the licensed Moderna DT or RT technology; (b) 10 years after the first commercial sale of a licensed product; and (c) expiration of the regulatory exclusivity. Upon the expiration of the term of a licensed product in the Moderna DT or Moderna RT program, the licenses granted to Moderna will survive and become perpetual, fully paid and royalty-free. Each party may terminate the Moderna Agreement on a program-by-program basis upon written notice to the other party for an uncured material breach or insolvency. The Company may terminate the Moderna Agreement upon written notice to Moderna for a patent challenge. Additionally, Moderna may terminate the agreement at its convenience with respect to Moderna DT or Moderna RT programs for any reason upon at least: (a) 60 days’ prior written notice if a first commercial sale has not occurred for the products in such program, or (b) 180 days’ prior written notice if a first commercial sale of a product in such program has occurred.

Accounting analysis and revenue recognition

The Company concluded that the Moderna DT and Moderna RT programs are in the scope of ASC 606. The Company determined that the licenses granted to Moderna, and its participation in the joint steering committee are not capable of being distinct from the preclinical research and development services and therefore concluded that there are two performance obligations: (1) the Moderna RT program and (2) the Moderna DT program. The Company also concluded that the option to obtain an exclusive license and options to extend Moderna RT program term do not include significant incremental discounts, and as such, the options do not provide material rights.

The Company concluded the DT Co-Co program research activities are within the scope of ASC 808, as the Company and Moderna are both active participants in the research, development and commercialization activities, are exposed to significant risks and rewards that are dependent on the success of the DT Co-Co program activities and share costs and profits equally. The Company determined that the guidance in ASC 730, *Research and Development*, was appropriate to apply to the DT Co-Co program research activities by analogy, based on the nature of the cost sharing provisions of the agreement. The Company concluded that DT Co-Co

program is one unit of accounting, as the co- exclusive license is not distinct from the research and development and the participation in joint steering committee activities. The Company recognizes payments to or from Moderna related to the DT Co-Co program cost sharing research activities as an increase to or reduction of research and development expenses, respectively.

The Company concluded that the Moderna Collaboration Agreement and the Moderna Convertible Promissory Note Agreement should be combined and treated as a single arrangement for accounting purposes as the agreements were entered into contemporaneously and in contemplation of one another. The Company estimated the contract consideration to be $90.0 million, which consisted of: 1) the non-refundable upfront collaboration payment of $40.0 million received in 2021, 2) $30.0 million in cash received in 2021 in exchange for the convertible promissory note and 3) the estimated cost reimbursements for Moderna DT and Moderna RT programs of $20.0 million. The Company constrained future milestones, as it assessed that it is probable that the inclusion of such variable consideration could result in a significant reversal of cumulative revenue in future periods. During the year ended December 31, 2021, the Company recorded $30.0 million of the contract consideration for the convertible promissory note based on the fair value (see Note 9) and allocated the transaction price of $60.0 million to each of the following programs on a relative standalone selling price basis: 1) $49.5 million to the Moderna RT program, 2) $5.5 million to the Moderna DT program, and 3) $5.0 million to the DT Co-Co program.

The variable consideration is reevaluated at each reporting period and as changes in circumstances occur. The Company recognizes revenue for each of the Moderna DT and Moderna RT programs as collaboration revenue based on the measure of progress using an estimated cost-based input method each reporting period. The Company also amortizes the allocation consideration for the DT Co-Co program of $5.0 million as a credit to research and development expenses during the discovery and lead optimization phases for the DT Co-Co program.

The Company recognized collaboration revenue of $0.2 million and $14.5 million in the consolidated statements of operations and comprehensive loss for the years ended December 31, 2021 and 2022, respectively. As of December 31, 2021 and 2022, deferred revenue related to Moderna was $39.7 million and $30.2 million, respectively. Collaboration revenue recognized during the year ended December 31, 2022 included $14.5 million that was included in deferred revenue as of December 31, 2021. The value of the transaction price allocated to the remaining unsatisfied portion of the performance obligations was approximately $41.9 million as of December 31, 2022, which the Company expects to recognize as revenue over the next three-to-four years.

The Company recognized $0.2 million and $0.3 million in credits to research and development expenses related to cost sharing allocation and amortization of the collaboration advance, respectively, within research and development expenses in the consolidated statement of operations and comprehensive loss during the year ended December 31, 2021. The Company recognized $0.9 million and $3.5 million in credits to research and development expenses related to cost sharing allocation and amortization of the collaboration advance, respectively, during the year ended December 31, 2022. As of December 31, 2021, the collaboration advance balance was $4.7 million, partially offset by the cost-sharing receivable balance of $0.2 million, which was presented as a collaboration advance on the Company's consolidated balance sheet. As of December 31, 2022, the collaboration advance balance was $1.1 million, partially offset by the cost-sharing receivable balance of $0.4 million, which was presented as a collaboration advance on the Company's consolidated balance sheet.

Affini-T development, option and license agreement

Terms of the agreement

On June 14, 2022, the effective date, the Company entered into a Development, Option and License Agreement (the "Affini-T Agreement") with Affini-T. Pursuant to the Affini-T Agreement, the parties have agreed to identify,

develop or optimize certain reagents using the Company's proprietary technology for Affini-T to use such reagents to develop and commercialize gene edited T-cell receptor ("TCR")-based therapeutic products exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with any engineered primary TCR alpha/beta T cells and non-exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with certain other engineered immune cells worldwide. A joint steering committee was established by both parties to assign alliance managers and project leaders to oversee the collaboration activities.

Pursuant to the Affini-T Agreement, the Company granted Affini-T options to receive, on a pre-specified target-by-pre-specified target basis, for up to six pre-specified targets, either (i) an exclusive, royalty-bearing, sublicensable worldwide license under all of the Company's applicable intellectual property to research, develop, manufacture, use, commercialize and otherwise exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that is directed to such pre-specified target, contains or comprises Primary TCR alpha/beta T Cells and is derived from *ex vivo* application of a Company reagent (the "Exclusive Option") or (ii) a non-exclusive, royalty-bearing, sublicensable worldwide license under all of the Company's applicable intellectual property to research, develop, manufacture, use commercialize and otherwise exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that is directed to such pre-specified target, contains or comprises TCR natural killer ("NK") cells derived from iPSC immune cells or TCR T cells derived from donor-derived or iPSC immune cells. Affini-T can exercise its options for either an exclusive license or a non-exclusive license, or both, for each pre-specified target by providing written notice prior to the earlier of (x) the end of the Affini-T Agreement term or (y) 90 days following the filing of an IND for a licensed product directed to a pre-specified target, subject to the payment of certain fees per each option exercised. After the option exercise, Affini-T has agreed to use commercially reasonable efforts to conduct all development and commercialization activities for a licensed product, and development and commercialization of all licensed products will be at Affini-T's sole cost and expense.

In connection with the Affini-T Agreement, the Company received upfront equity consideration of 719,920 shares of Affini-T's common stock with an estimated fair value of $1.3 million in June 2022. The fair value of Affini-T's shares of common stock was estimated by the Company's management, considering the most recent third-party valuation. Affini-T has also agreed to reimburse the Company for expenses incurred while performing research activities under the research plans. Additionally, the Company is eligible to receive (i) 933,650 shares of Affini-T's common stock upon the achievement of a regulatory milestone, which is the earlier of a submission of a drug master file to the FDA or an acceptance of an IND filing for a licensed product by the FDA, (ii) up to $18.8 million in future developmental milestone payments depending on the completion of or the number of patients dosed in, the relevant human clinical trial, or the initiation of a pivotal trial, and $40.6 million in future regulatory approval milestone payments, which include regulatory approvals in the U.S. and other markets for licensed products directed to a pre-specified target if options for both exclusive and non-exclusive licenses are exercised with respect to such target, (iii) up to $250.0 million in sales-based milestones for aggregate sales of all licensed products directed to a given pre-specified target and (iv) royalties ranging from a low-single digit to high-single digit percentage of worldwide annual net sales of licensed products.

The initial term of the Affini-T Agreement is five years from the effective date. If Affini-T exercises an Exclusive Option with respect to any pre-specified target during the initial term, the initial term will be extended by an additional five years. Following the expiration of the extended term, if any, the agreement will continue on a target-by-target basis and expire with respect to such target upon the expiration of the royalty term for all licensed products directed to such target. The Affini-T Agreement may be terminated during the term by either party for an uncured material breach by, or bankruptcy of, the other party. Additionally, Affini-T may terminate the Affini-T Agreement for convenience, in its entirety, on a research plan-by-research plan basis, on a target-by-target basis or on a licensed product-by-licensed product basis, by providing prior written notice.

Accounting analysis and revenue recognition

The Company concluded that the Affini-T Agreement is in the scope of ASC 606 and that there is one performance obligation to perform research activities under the Affini-T Agreement. Exclusive and non-exclusive licenses are optional contingent purchases that do not include significant incremental discounts, and therefore do not provide a material right.

At the effective date, the transaction price consisted of the upfront equity consideration with an estimated fair value of $1.3 million and estimated research reimbursement costs. Research reimbursement costs represent variable consideration, and the Company's management estimates what portion to include in total consideration at the end of each reporting period. Other payments under the Affini-T Agreement, including additional equity consideration and development and regulatory milestones, also represent variable consideration, and are constrained to the extent that the inclusion of such variable consideration could result in a significant reversal of cumulative revenue in future periods. As of December 31, 2022, additional equity consideration and future development and regulatory milestone payments were excluded from the estimated total transaction price as they were considered constrained. The transaction price is reevaluated in each reporting period and as changes in circumstances occur. The Company recognizes revenue each reporting period based on the measure of progress using an estimated cost-based input method.

The Company recognized $2.6 million in collaboration revenue in the consolidated statements of operations and comprehensive loss during the year ended December 31, 2022. As of December 31, 2022, the Company recorded $1.3 million in contract assets on the consolidated balance sheet, related to services performed but not invoiced. There was no deferred revenue related to the Affini-T Agreement as of December 31, 2022. The value of the transaction price allocated to the remaining unsatisfied portion of the performance obligation was approximately $8.0 million as of December 31, 2022, which the Company expects to recognize as revenue over the next five-to-six years. In June 2023, the joint steering committee approved the budget for estimated research reimbursement costs for the Affini-T Agreement, which resulted in a $2.4 million reduction to variable consideration.

Ionis collaboration and license agreement

Terms of the agreement

On November 10, 2022, the effective date, the Company entered into a Collaboration and License Agreement (the "Ionis Agreement") with Ionis Pharmaceuticals, Inc. ("Ionis") to collaborate on drug discovery and exploratory research activities to advance new medicines using gene editing strategies, with the goal of discovering novel medicines. Pursuant to the terms of the Ionis Agreement, the Company granted Ionis and its affiliates a worldwide exclusive, royalty-bearing license, with the right to grant sublicenses, to use all licensed systems and licensed products in the field of *in vivo* gene editing for all therapeutic, prophylactic, palliative, and analgesic uses in humans. In connection with the Ionis Agreement, the Company also has the right to exercise an exclusive option to co-develop and co-commercialize certain products under a drug discovery program. A joint steering committee was established by both parties to coordinate, oversee, and monitor the research and drug discovery activities under the Ionis Agreement.

The parties will collaborate to discover therapeutic products under a drug discovery program and develop a drug discovery plan for each target, selected by Ionis. The target selection is divided into two waves: up to four targets in Wave 1 and up to four targets in Wave 2. For each drug discovery program, once the parties identify a development candidate that is suitable for further development, Ionis will be responsible for the development and commercialization of products resulting from such program. Per the terms of the Ionis Agreement, at any time prior to the designation of a development candidate for a drug discovery program and for any reason, Ionis may replace the collaboration target, provided such target has not previously been substituted out. Ionis may substitute (i) up to two Wave 1 targets and (ii) up to two Wave 2 targets.

The drug discovery activities for a program commence on the selection of a target and expire upon the earlier of (a) completion of all drug discovery activities for such program, (b) the fifth anniversary of the effective date and (c) selection of a development candidate for such drug discovery program. If one or more Wave 2 targets become collaboration targets as a result of the parties achieving enabled delivery and less than two years are remaining in the drug discovery term, then the term will be extended to the earlier of (i) the time that the Company completes all of its activities under the applicable drug discovery plan and (ii) the seventh anniversary of the effective date, subject to the Company's consent.

The parties will also conduct an exploratory research program, and will jointly optimize gRNA and select delivery technologies and other activities. The exploratory research activities commence on the effective date and expire upon the earlier of (a) completion of all exploratory research activities established in the exploratory research plan, and (b) the fifth anniversary of the effective date.

The Company has the exclusive option to co-develop and co-commercialize the licensed products under a drug discovery program (the "Co-Co Option") with Ionis. The Co-Co Option may be exercised for (a) the initial Wave 1 target ("Target 1"), (b) no more than one of the other three discovery programs for the Wave 1 targets, and (c) no more than two drug discovery programs for the Wave 2 targets that become collaboration targets. If the Company exercises the Co-Co Option for a particular drug discovery program, that drug discovery program will automatically be deemed a "Co-Co Program", all corresponding licensed products be deemed "Co-Co Products," the Company will be obligated to pay Ionis an option exercise fee, and the parties will enter into a separate co-development and co-commercialization agreement. The Co-Co Option exercise fee will equal 50% of Ionis' internal costs and out-of-pocket costs incurred in the conduct of the drug discovery activities prior to the exercise of the Co-Co Option and be reduced by 50% of the Company's corresponding costs incurred. Future development and commercialization costs will be shared equally. The Company may elect to reduce its cost-share percentage anywhere between 50% and 25% on a go-forward basis, provided the Company will continue to bear 50% of the costs of any clinical trials ongoing at the time of the election through the completion of the clinical trials.

The Company will manufacture all licensed systems and certain components of the applicable licensed products that are needed by Ionis for use in its development activities and all of the Company's manufactured components needed by Ionis for use in its commercialization activities. The Company will provide the manufactured components at a price that represents the cost of goods plus 15%.

Pursuant to the terms of the Ionis Agreement, the Company has also been granted an option to obtain a non-exclusive, royalty-bearing license, with the right to grant sublicenses, for certain Ionis' background technology to use in up to eight therapeutic products discovered by the Company in the field of *in vivo* gene editing and directed to a Collaboration Target (each such product, a "Metagenomi Product" and each such option an "Ionis IP Option"), but subject to encumbrance checks with respect to particular targets. A Collaboration Target is a target that is selected by Ionis, and, with respect to the Company is not the subject of discussions with a third party, is not the subject of a contractual grant of rights to a third party nor the subject of a Company bona fide research and development program. If the Company exercises its Ionis IP Option, the Company will pay to Ionis up to several million dollars per Metagenomi Product upon achievement of certain clinical and regulatory milestones. The Company is also obligated to pay Ionis royalties in an amount equal to a low single-digit royalty on the net sales of the applicable Metagenomi Product on product-by-product and country-by-country basis.

In November 2022, the Company received an $80.0 million upfront payment from Ionis for the Wave 1 drug discovery research collaboration and selected Target 1. Ionis selected its second target ("Target 2") in Wave 1 in December 2022, and will select two final additional Wave 1 targets ("Target 3" and "Target 4") within the 12 months from the effective date, as permitted under the arrangement. Ionis has an option to select up to four

Wave 2 targets at any time during the drug discovery term, if (a) an IND for any licensed product directed to a Wave 1 target is filed with the applicable regulatory authority or (b) the parties achieve enabled delivery for a non-liver target under the exploratory research activities, by providing written notice and by paying a Wave 2 target selection fee of $15.0 million or $30.0 million, depending on and per the selected target.

Ionis is obligated to reimburse the Company for all internal costs and out-of-pocket costs incurred in the performance of the exploratory research activities, up to an aggregate of $10.0 million, which is payable in quarterly installments of $0.5 million during the exploratory research term. The Company is also eligible to receive (a) up to $29.0 million in future development milestone payments for each licensed product; (b) up to $60.0 million in future regulatory milestone payments for each licensed product; (c) up to $250.0 million in sales-based milestones for each licensed product; and (d) royalties on annual net sales of licensed products from a mid-single-digit to low-teens percentage, subject to customary reductions.

The term of the Ionis Agreement will continue (i) with respect to the drug discovery programs, until the expiration of all applicable royalty terms for a licensed product, (ii) with respect to the Co-Co Programs, until the parties cease all exploitation for the Co-Co Products that are the subject to such Co-Co Program, and (iii) with respect to the Metagenomi Products, until the expiration of the royalty term for a Metagenomi Product. The royalty term ends on the latest of the following two dates: (i) the expiration of (A) the last claim of any issued and unexpired patent, or (B) a claim within a patent application that has not been pending for more than seven years from the earliest date to which the claim or applicable patent application is entitled to claim priority and which claim has not been revoked, cancelled, withdrawn, held invalid, or abandoned, or (ii) 12 years following the first commercial sale of a licensed product.

The Ionis Agreement may be terminated during the term by either party for an uncured material breach or bankruptcy by the other party. Additionally, Ionis may terminate the Ionis Agreement for convenience and without penalty, in its entirety or on a licensed product-by-licensed product basis, by providing 90 days' written notice.

Accounting analysis and revenue recognition

The Company concluded that the Ionis Agreement is in the scope of ASC 606 at the effective date and until the Company exercises its Co-Co Option for any drug discovery program, which was determined to not be probable at the effective date and as of December 31, 2022. The Company also concluded that exclusive licenses and participation in a joint steering committee are not distinct from discovery research services and should thus be combined into one performance obligation (the "discovery program"). The Company also concluded that exploratory research services are a separate and distinct performance obligation (the "exploratory program"). As the Ionis options for Wave 2 targets are optional purchases and do not have significant incremental discounts, as such, the options do not provide material rights.

The Company allocated the total estimated transaction price of $90.0 million, which consisted of an $80.0 million upfront payment received in November 2022 and a $10.0 million reimbursement for research costs, into two performance obligations, and was determined based on their estimated standalone selling prices. The Company concluded that future development and commercial supply agreements are at market terms, as the terms were consistent with industry standards as of the effective date. The Company constrains future milestone payments under the arrangement to the extent that the inclusion of such variable consideration could result in a significant reversal of cumulative revenue in future periods. The Company constrained all development and regulatory milestone payments at the effective date and as of December 31, 2022. The Company is recognizing revenue of $80.0 million related to the discovery program and of $10.0 million related to exploratory program over the research terms using an estimated cost-based input method as a measure of progress for each obligation.

The Company recognized $0.1 million in collaboration revenue in the consolidated statements of operations and comprehensive loss during the year ended December 31, 2022. As of December 31, 2022, deferred revenue

related to the Ionis Agreement was $79.9 million. The value of the transaction price allocated to the remaining performance obligations was approximately $89.9 million as of December 31, 2022, which the Company expects to recognize as revenue over the next five-to-six years.

8. Cystic fibrosis foundation grant income

In April 2021, the Company received an award of $0.6 million to finance a development program (the “CFF Grant Letter”), to discover and use novel gene-editing systems to correct cystic fibrosis transmembrane conductance regulator mutations, from Cystic Fibrosis Foundation (“CFF”), a non-profit organization. In accordance with CFF Grant Letter, the Company received $0.4 million upon initiation of the development program in June 2021 and expects to receive $0.2 million upon the program completion in 2023 fiscal year. The award was provided to the Company without a provision for financial return to CFF. However, in the event that CFF provides additional funding to the Company, pursuant to a separate agreement between CFF and the Company (a “Future Funding Agreement”), CFF may receive royalty rights, an equity interest, a debt instrument or other consideration of economic value that is based on the amount of funding CFF has provided to the Company, the award amount actually paid to the Company under the current award will be treated as an advance towards, and included in, the award amount, investment amount, principal amount or other similar term representing the amount of funding provided by CFF to the Company under the Future Funding Agreement. The Company does not expect to receive any future funding from CFF and concluded that funds received are non-refundable. The Company recognized $0.2 million and $0.3 million related to the progress of a development program during the years ended December 31, 2021 and 2022, respectively, as other income (expense), net, in the consolidated statements of operations and comprehensive loss, as this grant is not considered an ongoing major and central operation of the Company’s business. The Company recognized $0.2 million and zero of deferred grant income in accrued expenses and other current liabilities in the consolidated balance sheet as of December 31, 2021 and December 31, 2022, respectively. The Company recognized $0.1 million of grant income receivable in prepaid expenses and other current assets in the consolidated balance sheets as of December 31, 2022.

9. Convertible promissory note

In October 2021, together with the Moderna Agreement, the Company issued a convertible promissory note for $30.0 million to Moderna with 6.0% annual interest payable upon the note maturity in April 2023. The Company cannot prepay the convertible promissory note without Moderna’s consent. The outstanding principal amount and any unpaid accrued interest is automatically convertible into redeemable convertible preferred units sold in a private financing with total gross cash proceeds of not less than $50.0 million (the “Qualified Financing”) at a conversion price equal to the purchase price per unit that depends on the timing of the qualified financing: i) 100% of the lowest price paid per unit by investors in the qualified financing, if the qualified financing occurs within three months from the note issuance date; ii) 95% of the lowest price paid per unit by investors in the qualified financing, if the qualified financing occurs between three and six months from the note issuance date; iii) 90% of the lowest price paid per unit by investors in the qualified financing, if the qualified financing occurs between six and twelve months from the note issuance date; iv) 85% of the lowest price paid per unit by investors in the qualified financing, if the qualified financing occurs after twelve months from the note issuance date.

Moderna also had an option to convert the note on similar terms in the event of a non-qualified financing using the conversion price upon a qualified financing. Upon maturity, the outstanding principal and accrued interest is either due and payable in full or converted in the Series A-5 redeemable convertible preferred units (or the most senior redeemable convertible preferred units of the Company then outstanding) at a conversion price equal to the original issue price of the Series A-5 redeemable convertible preferred units (or the most senior units of the Company then outstanding). Principal and accrued interest of the note were payable in cash in an

event of default. In a deemed liquidation event the outstanding principal and accrued and unpaid interest is either due and payable in full, plus 50% on the outstanding principal amount of the note or were convertible into the common units of the Company at a conversion price equal to the original issue price of the Series A-5 redeemable convertible preferred units (or the most senior units of the Company then outstanding). In the event that the Company closes its initial public offering of its common units or common stock or other equity securities with total gross proceeds of not less than $50.0 million ("Qualified IPO"), the principal and unpaid accrued interest then outstanding is convertible automatically into the same type of the Company's securities issued upon IPO at 90% of the lowest purchase price paid per equity securities in the Qualified IPO.

The convertible promissory note is carried at amortized cost, which management estimates approximates its fair value. On the issuance date of the convertible promissory note, the Company concluded that certain embedded unit-settled conversion put features, qualified IPO features and deemed liquidation put features were derivatives that required bifurcation. The Company estimated the fair value of embedded derivatives was minimal due to the low probability of settlement events for these features. The Company recognized $34,000 of issuance costs as a debt discount related to legal fees, which was amortized to interest expense over the term of the note using effective interest method. The Company recognized $0.3 million and $0.1 million of accrued interest expense in the consolidated statements of operations and comprehensive loss for the years ended December 31, 2021 and 2022, respectively.

The convertible promissory note and all accrued interest were converted, upon the Qualified Financing, into 2,607,387 Series B redeemable convertible preferred units without any discount in January 2022 (see Note 11) and no gain or loss was recognized on the conversion.

10. Commitments and contingencies

Operating leases

In November 2019, the Company entered into a 5-year operating lease for laboratory and office space in Emeryville, California. In conjunction with signing the lease, the Company secured a letter of credit in favor of the lessor in the amount of $0.2 million. The lease agreement includes a renewal provision allowing the Company to extend this lease for an additional 5 years at the prevailing rental rate, which the Company was not reasonably certain to exercise. In addition to base rent, the Company was obligated to pay variable costs related to its share of operating expenses and taxes as well as parking fees for unreserved parking spaces in a shared lot. In March 2021, this lease was modified to shorten the lease term to terminate in April 2021. Lease payments made related to this lease in 2021 totaled $0.1 million. In May 2021, the letter of credit related to this lease was canceled.

In January 2021, the Company entered into a ten-year operating lease for laboratory and office space in Emeryville, California. The lease commencement date was in February 2021. In conjunction with signing this lease, the Company secured a letter of credit for $3.3 million, which is recorded as noncurrent restricted cash in the consolidated balance sheets. The lease agreement includes a renewal provision allowing the Company to extend this lease for an additional five years, which the Company is not reasonably certain to exercise. In addition to base rent, the Company pays variable costs related to operating expenses and taxes, which are recognized as incurred.

In September 2021, the Company entered into a 9.25-year operating lease for office space in Emeryville, California, with a lease commencement date in November 2021. In conjunction with signing the lease, the Company secured a letter of credit for $0.8 million, which is recorded as noncurrent restricted cash in the consolidated balance sheets. In addition to base rent, the Company will pay variable costs related to operating expenses and taxes, which are recognized as incurred.

In November 2022, the Company entered into an 8.25-year sublease for office, research and laboratory space in Emeryville, California, with a lease commencement date in January 2023. In conjunction with signing the lease, the Company secured a letter of credit for $2.0 million, which is recorded as restricted cash in the consolidated balance sheet as of December 31, 2022. Payments for base rent required under this lease are expected to total approximately $49.3 million over the term, of which $2.9 million is payable within the 12 months. In addition to base rent, the Company will pay variable costs related to its share of operating expenses and taxes. As this lease has not yet commenced as of December 31, 2022, no right-of use asset or lease liability is recorded.

Operating lease cost for the years ended December 31, 2021 and 2022, totaled $2.2 million and $3.5 million, respectively, including $0.5 million and $0.4 million of variable lease cost, respectively.

Supplemental information related to the Company's operating leases is as follows (in thousands):

	Years ended December 31	
	2021	2022
Cash paid for amounts included in the measurement of lease liabilities	$ 1,453	$ 2,158
Weighted average remaining lease term (in years)	9.1	8.1
Weighted-average discount rate	10.1%	10.1%

The following table summarizes a maturity analysis of the Company's operating lease liabilities showing the aggregate lease payments as of December 31, 2022 (in thousands):

2023	$ 3,279
2024	3,122
2025	3,216
2026	3,313
2027	3,412
Thereafter	10,862
Total future lease payments	27,204
Less imputed interest	(8,633)
Total lease liability balance(1)	18,571
Less: current operating lease liabilities	(1,515)
Non-current operating lease liabilities	$17,056

(1) Total lease liability as of December 31, 2022 excludes lease payments of $49.3 million for a lease signed but not yet commenced.

Legal contingencies

From time to time, the Company may become involved in legal proceedings arising from the ordinary course of business. The Company records a liability for such matters when it is probable that future losses will be incurred and that such losses can be reasonably estimated. Significant judgment by the Company is required to determine both probability and the estimated amount. Management is currently not aware of any legal matters that could have a material adverse effect on the Company's financial position, results of operations or cash flows.

Guarantees and indemnifications

In the normal course of business, the Company enters into agreements that contain a variety of representations and provide for general indemnification. Its exposure under these agreements is unknown because it involves claims that may be made against the Company in the future. To the extent permitted under Delaware law, the

Company has agreed to indemnify its directors and officers for certain events or occurrences while the director or officer is, or was serving, at a request in such capacity. To date, the Company has not paid any claims or been required to defend any action related to its indemnification obligations. As of December 31, 2021 and 2022, the Company did not have any material indemnification claims that were probable or reasonably possible and consequently has not recorded related liabilities.

11. Redeemable convertible preferred units

On March 15, 2021, the Company closed the Series A-5 financing and issued 1,580,937 shares of the Series A-5 redeemable convertible preferred units for gross cash proceeds of $10.0 million. The Company incurred $0.1 million in issuance costs.

On January 21, 2022, the Company closed the Series B financing and issued 12,446,876 shares of the Series B redeemable convertible preferred units for gross cash proceeds of $145.0 million. The Company incurred $0.7 million in issuance costs. Concurrently with the closing of the Series B financing, the outstanding Moderna convertible promissory note and accrued interest of $30.4 million was converted into 2,607,387 Series B Preferred Units, at a conversion price equal to the price per unit paid by the Series B investors.

On December 20, 2022, the Company entered into Series B-1 redeemable convertible preferred unit purchase agreement to sell up to 7,108,480 Series B redeemable convertible preferred units at the purchase price of $14.06770. In December 2022, the Company sold and issued 6,773,726 shares of the Series B-1 redeemable convertible preferred units for gross cash proceeds of $95.3 million in the initial closing. The Company incurred $0.4 million issuance costs. Additional shares may be sold within 90 days of the initial closing.

As of December 31, 2022, the Company operated under the Amended and Restated Limited Liability Company Agreement dated December 20, 2022 (the “LLC Agreement”). The LLC Agreement provides for eight classes of units: common units, Series A-1 redeemable convertible preferred units (Series A-1), Series A-2 redeemable convertible preferred units (Series A-2), Series A-3 redeemable convertible preferred units (Series A-3), Series A-4 redeemable convertible preferred units (Series A-4), Series A-5 redeemable convertible preferred units (Series A-5), Series B redeemable convertible preferred units (Series B) and Series B-1 redeemable convertible preferred units (Series B-1).

The redeemable convertible preferred units as of December 31, 2021, consisted of the following (in thousands, except unit data):

	Units authorized	Units issued and outstanding	Aggregate liquidation preference	Net carrying value
Series A-1	7,501,002	7,501,002	$ 24,247	$ 24,067
Series A-2	774,473	774,473	500	581
Series A-3	1,513,860	1,513,860	1,773	1,892
Series A-4	8,280,360	8,280,360	40,149	40,007
Series A-5	1,580,937	1,580,937	10,000	9,948
	19,650,632	19,650,632	$ 76,669	$ 76,495

The redeemable convertible preferred units as of December 31, 2022, consisted of the following (in thousands, except unit data):

	Units authorized	Units issued and outstanding	Aggregate liquidation preference	Net carrying value
Series A-1	7,501,002	7,501,002	$ 24,247	$ 24,067
Series A-2	774,473	774,473	500	581
Series A-3	1,513,860	1,513,860	1,773	1,892
Series A-4	8,280,360	8,280,360	40,149	40,007
Series A-5	1,580,937	1,580,937	10,000	9,948
Series B	15,054,263	15,054,263	175,375	174,678
Series B-1	7,108,480	6,773,726	95,291	94,930
	41,813,375	41,478,621	$ 347,335	$ 346,103

The holders of the redeemable convertible preferred units have various rights and preference as follows:

Voting rights

Each redeemable convertible preferred unit is entitled to one vote for each common unit into which such redeemable convertible preferred unit is then convertible. The redeemable convertible preferred unitholders and the common unitholders vote together on all matters as a single class, except as otherwise provided by law or the provisions of the LLC Agreement.

The Board of Managers consists of up to seven individuals. As long as at least 618,716 Series A-1 redeemable convertible preferred units, Series A-2 redeemable convertible preferred units and/or Series A-3 redeemable convertible preferred units remain outstanding, the members holding a majority of the outstanding Series A-1 redeemable convertible preferred units, Series A-2 redeemable convertible preferred units and Series A-3 redeemable convertible preferred units, voting together as a single class on an as-converted basis, are entitled to elect one manager. As long as at least 1,654,555 Series A-4 redeemable convertible preferred units remain outstanding, the members holding a majority of the Series A-4 redeemable convertible preferred units, voting as a single class, are entitled to elect one manager. As long as at least 316,187 Series A-5 redeemable convertible preferred units remain outstanding, the members holding a majority of the Series A-5 redeemable convertible preferred units, voting as a single class, are entitled to elect one manager. As long as at least 3,010,852 Series B redeemable convertible preferred units remain outstanding, the members holding a majority of the Series B redeemable convertible preferred units, voting as a single class, are entitled to elect one manager. The members holding a majority of the common units, voting as a single class are entitled to elect one manager. The members holding a majority of the units then outstanding, voting together as a single class on an as-converted to common units basis are entitled to elect any remaining managers. As of December 31, 2021 and 2022, respectively, the Company's Board of Managers consisted of five and six individuals, respectively.

Conversion

Each redeemable convertible preferred unit is convertible into common units at the option of a holder at the then applicable conversion price, which is equal the original purchase price, subject to adjustments for recapitalization and others. The original purchase price is equal to $3.2325 per Series A-1 Preferred Unit, $0.6456 per Series A-2 Preferred Unit, $1.1713 per Series A-3 Preferred Unit, $4.84875 per Series A-4 Preferred Unit, $6.32536 per Series A-5 Preferred Unit, $11.64951 per Series B Preferred Unit, and $14.06770 per Series B-1 Preferred Unit. As of December 31, 2021 and 2022, the redeemable convertible preferred units were convertible into common units at a one-for-one conversion ratio.

Each redeemable convertible preferred unit is automatically convertible into common units (or shares of common stock, if the Company is converted into a corporation), based on the then-effective applicable conversion rate (A) at any time upon the affirmative vote or written consent of (i) the members holding a majority of the redeemable convertible preferred units then outstanding, (ii) the members holding a majority of the Series B redeemable convertible preferred units then outstanding, and (iii) the members holding a majority of the Series B-1 redeemable convertible preferred units then outstanding, or (B) immediately upon the closing of a firmly underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of common units (or other common securities) with the gross cash proceeds to the Company, before underwriting discounts, commissions and offering expenses, are at least $100.0 million, or (C) the closing of a merger, acquisition or other business combination involving the Company and a publicly traded special purpose acquisition company ("SPAC") or its subsidiary or affiliate in which the surviving public company has available immediately cash of at least $100.0 million in the aggregate greater than the cash on the Company's consolidated balance sheets as of immediately prior to such merger, acquisition or other business combination (including proceeds of a private investment in public equity transaction that is substantially contemporaneous with or conditioned on such merger, acquisition or other business combination, and any redemptions from the SPAC's trust account).

Anti-dilution and other protective provisions

The holders of the redeemable convertible preferred units have proportional anti-dilution protection right for unit splits, unit dividends and similar recapitalizations, subject to certain exclusions, anti-dilution price protection for additional sales of securities by the Company for consideration per unit less than the applicable conversion price per unit of any series of the redeemable convertible preferred units, on a broad-based weighted average basis.

The holders of the redeemable convertible preferred units have certain protective rights. The Company shall not, either directly or by amendment, merger, consolidation or otherwise, without the prior written approval of members holding a majority of the redeemable convertible preferred units then outstanding to alter or change the rights, preferences or privileges of the redeemable convertible preferred units; consummate a liquidation or a deemed liquidation event; change the Company's LLC Agreement; authorize or create any new class or series of units or other equity security; increase or decrease the authorized number of the common units or the redeemable convertible preferred units or any series; redeem, acquire or repurchase any, or make any distribution on, any common units or redeemable convertible preferred units; change the compensation or equity awards granted to executive officers of the Company, unless such transaction is approved by the Board of Managers; increase or decrease the authorized number of managers constituting the Board of Managers and amend other rights or enter into certain transactions.

Liquidation preference

In the event of a liquidation, a deemed liquidation event (including a consolidation, merger or reorganization or a sale, lease, transfer, exclusive irrevocable license or other disposition of all or substantially all of the assets of the Company), dissolution or winding-up of the Company, the funds are distributed first to the members holding the redeemable convertible preferred units in proportion to and to the extent of their unreturned original purchase price per redeemable convertible preferred unit, until each member holding the redeemable convertible preferred units has received cumulative distributions in an amount equal to the unreturned original purchase price for each of such member's redeemable convertible preferred unit. Second, to the members holding common units and the redeemable convertible preferred units pro rata based on the number of units held by each such holder, assuming for this purpose that all the redeemable convertible preferred units have been converted into common units as of the date of such operating distribution or distribution of net proceeds

or assets available for distribution, whether in cash or in other property. Third, the amounts that would otherwise be distributed to any redeemable convertible preferred unit holder pursuant to the liquidation preference on as-converted to common units basis will be reduced by an amount equal to the remaining preferred participation threshold amount for such redeemable convertible preferred unit. The preferred participation threshold amount for a redeemable convertible preferred unit is equal to the original purchase price, reduced by distributions paid.

Distributions preference

Distributions, when determined by the Board of Managers, are payable to the members holding the redeemable convertible preferred units, pro rata in proportion to the liquidation preference amounts in respect of the redeemable convertible preferred units held by such members; thereafter, to the members in proportion to the number of shares held by such members, on as converted basis. No distributions were declared or made from inception and during the years ended December 31, 2021 and 2022.

Redemption

The redeemable convertible preferred units are not redeemable except in the event of certain effected deemed liquidation events, that are not in the Company's control.

12. Common units

As of December 31, 2021 and 2022, the Company was authorized to issue 32,000,000 and 66,000,000 common units, respectively. Each common unit is entitled to cast one vote. The holders of common units are also entitled to receive distributions whenever funds are legally available and when declared by the Company's Board of Managers, subject to prior rights of the holders of the redeemable convertible preferred units. No distributions have been declared from inception to date.

As of December 31, 2021 and 2022, the Company reserved common units for future issuance as follows:

	December 31,	
	2021	2022
Outstanding redeemable convertible preferred units	19,650,632	41,478,621
Outstanding profits interests	5,783,758	7,516,073
Units available for grants under 2019 Equity Incentive Plan	236,886	7,088,092
Total common units reserved for future issuance	25,671,276	56,082,786

Founders and investors common units

In June 2017, Metagenomi Inc. issued 4,687,500 shares of its common stock at a purchase price of $0.0001 per share to its founders and investors for services, which was an estimated fair value determined by the Board of Managers at the issuance date. Pursuant to the terms of the stock purchase agreements, 25% of the shares vested on the first anniversary of the vesting start date and monthly over the next 36 months. Vesting of shares is accelerated upon a change of control event (including an acquisition of the Company by another entity by means of any transaction or series of related transactions, or a sale of all or substantially all of the assets of the Company). The Company has a right to repurchase unvested shares upon termination of services provided by the founders to the Company at the price lower of i) the purchase price or ii) the fair value at the date of

repurchase. In November 2018, in connection with the reorganization, common stock issued by Metagenomi Inc. was exchanged for common units of Metagenomi with the same terms. The estimated fair value of common unit at the modification date was determined to be $0.02 per unit, based on the Company's recent common unit valuation, and the modification expense was immaterial.

In March 2019, the Company issued 1,260,000 common units to an investor for services with a purchase price of $0.02 per unit, which was based on the recent Company's common stock valuation. As long as the investor continues to provide services, 25% of the shares vested immediately and the remainder vested monthly over the next 36 months. Vesting of shares is accelerated upon a change of control event. The Company has a right to repurchase unvested shares upon termination of services provided by the founders to the Company at the price lower of i) the purchase price or ii) the fair value at the date of repurchase.

The Company accounts for issued common units as unit-based compensation to founders and investors as service providers and recognizes unit-based compensation expense of $0.1 million over the vesting period. The Company had 494,689 and 78,750 common units vested during the years ended December 31, 2021 and December 31, 2022, respectively, each having fair value of less than $0.1 million. 78,750 and zero common units were unvested as of December 31, 2021 and 2022, respectively.

The following table provides a summary of common units with vesting conditions activity during the year ended December 31, 2022:

	Number of common units unvested	Weighted-average grant date fair value
Unvested as of January 1, 2022	78,750	$ 0.03
Common Units vested	(78,750)	$ 0.03
Unvested as of December 31, 2022	—	$ —

13. Profits interests plan

The Company grants profits interests under the 2019 Equity Incentive Plan, adopted on March 13, 2019 (the "2019 Plan"). The Company may grant profits interests with a threshold amount, which may be zero, established by the Board of Managers on the date of issuance. Accordingly, such profits interests do not give a holder a share of the proceeds if the Company's assets were sold at fair market value and the proceeds of such disposition were distributed in complete liquidation of the Company immediately after the date of grant but give a holder a right to share in the appreciation in the value of a common unit from the date of receipt to the future, as specifically provided in the LLC Agreement. The 2019 Plan allows for grants of profits interests to the Company's officers, employees, directors and consultants. Profits interests generally vest monthly over four years, with or without one- year cliff vesting in the first year. In the event of a profits interest holder's termination, the unvested portion of such profits interest is automatically forfeited and cancelled without any additional consideration. Additionally, the Company has the right to repurchase the vested portion of such profits interest at its fair market value, which is based on the fair market value of a common unit (as determined by the Board of Managers), less the applicable profits interest threshold amount, at any time during the 12-month period after termination of a profits interest holder's service to the Company.

The number of common units reserved for issuance under the 2019 Plan was 6,020,644 and 14,604,165 at December 31, 2021, and 2022, respectively.

The table below presents a summary of activities and a reconciliation of common units authorized and remaining for grant under the 2019 Plan during the year ended December 31, 2022:

	Units available for grants	Profits interests	Weighted-average threshold amount	Aggregate intrinsic value (in thousands)
Outstanding as of January 1, 2022	236,886	5,783,758	$ 0.27	$ 1,372
Authorized	8,583,521	—	$ —	
Profits interests granted	(2,763,356)	2,763,356	$ 3.20	
Forfeited and expired	1,031,041	(1,031,041)	$ 1.55	
Outstanding as of December 31, 2022	7,088,092	7,516,073	$ 1.17	$ 34,398
Vested and expected to vest	7,088,092	7,516,073	$ 1.17	$ 34,398

The aggregate intrinsic value is calculated as the positive difference between the threshold amount of the profits interests and the fair value of the Company's common unit as of December 31, 2021 and 2022.

During the years ended December 31, 2021 and 2022, the Company granted 3,550,854 and 2,763,356 profits interests with a weighted average grant date fair value of $1.03 and $1.90, respectively. The total fair value of the profits interests vested during the years ended December 31, 2021 and 2022 was $0.2 million and $1.1 million, respectively.

Unit-based compensation expense

The Company estimated the fair value of profits interests on the grant date using the Black-Scholes option-pricing model based on the following assumptions for the years ended December 31, 2021 and 2022:

	Years ended December 31	
	2021	2022
Expected volatility	79.62% — 91.19%	79.57% — 82.60%
Expected dividend yield	0%	0%
Expected term (in years)	2.66 — 6.63	3.51 — 4.00
Risk-free interest rate	0.18% — 0.94%	2.65% — 4.33%
Threshold range	$ 0.34 — $0.51	$ 3.20

Expected volatility—The Company is a private company and lacks company-specific historical and implied volatility information. Therefore, the Company estimates its expected unit's volatility based on the historical volatility of a publicly traded set of peer companies and expect to continue to do so until the Company has adequate historical data regarding the volatility of the Company's traded unit or stock price.

Expected term—The expected term of profits interests has been determined based on the expected time to liquidity and expected vesting term.

Risk-free interest rate—The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award.

Dividends—Expected dividend yield is zero because the Company does not pay cash dividends on common units and does not expect to pay any cash dividends in the foreseeable future.

The grant date fair value of common units utilized in the Black-Scholes model is determined by the Company's Board of Managers with the assistance of management. The grant date fair value of common units is determined using valuation methodologies which utilizes certain assumptions including probability weighting of expected exit events, volatility, time to liquidation, a risk-free interest rate and an assumption for a discount for lack of marketability. In determining the fair value of the common units, the methodologies used to estimate the enterprise value were performed using methodologies, approaches, and assumptions consistent with the American Institute of Certified Public Accountants Accounting and Valuation Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation.

The following table presents the classification of unit -based compensation expense for the years ended December 31, 2021 and 2022 (in thousands):

	Years ended December 31,	
	2021	2022
Research and development expenses	$ 90	$ 754
General and administrative expenses	285	1,208
Total unit-based compensation expense	$375	$1,962

The above unit-based compensation expense related to the following unit-based awards for the years ended December 31, 2021 and 2022 (in thousands):

	Years ended December 31,	
	2021	2022
Profits Interests	$365	$1,960
Common Units	10	2
Total unit-based compensation expense	$375	$1,962

There was $3.3 million and $5.7 million in unrecognized unit-based compensation expense related to the profits interests as of December 31, 2021 and 2022, respectively, that was expected to be recognized over a weighted-average period of 3.81 and 3.03 years, respectively. There was less than $0.1 million unrecognized unit-based compensation expense related to the common units with vesting conditions as of December 31, 2021, that was expected to be recognized over a weighted-average period of 0.2 years. As of December 31, 2022, there was no unrecognized expense related to the common units with vesting conditions.

14. Related party transactions

The Company's former chief business officer was a founder, and a chief executive officer of Affini-T. Affini-T was a related party when the Company exercised significant influence until November 2021. In November 2021, certain common stock shares were forfeited, and the chief business officer resigned from the Company. As of December 31, 2021, Affini-T is no longer a related party of the Company (see Note 5).

Bayer Healthcare LLC ("Bayer") is a significant investor in the Company and has a Board seat. The Company and Bayer entered into a research and development master service agreement in November 2019. Bayer was performing research and development services under the agreement in accordance with the statement of works agreed by the parties. Services under this agreement were completed as of December 31, 2020, and the Company accrued $0.2 million in accrued expenses and other current liabilities as of December 31, 2020. The Company paid $0.2 million to Bayer in February and March 2021 and there were no other services provided by Bayer to the Company during the years ended December 31, 2021 and December 31, 2022.

In connection with Series B and Series B-1 financings, the Company reimbursed certain investors for finance issuance costs that they incurred totaling $0.4 million. As of December 31, 2022, $0.1 million of Series B-1 financing costs reimbursable to investors is recorded in accrued expenses and other current liabilities in the consolidated balance sheets.

15. Income taxes

Metagenomi is treated as a partnership for tax purposes, and thus, is not subject to income taxes. It is the responsibility of the LLC members to report their proportionate share of any taxable income or loss generated by Metagenomi to the appropriate taxing authorities and pay the associated taxes, if any. With respect to the Company's subsidiary, Metagenomi Inc. is a corporation for tax purposes and is subject to income taxes which have been included in the consolidated financial statements. All pre-tax losses have been incurred in the United States.

During the year ended December 31, 2022, income tax expense consisted of the following (in thousands):

Current:	
Federal	$2,569
State	—
Total current tax expense	2,569
Deferred:	
Federal	—
State	—
Total deferred tax expense	—
Total tax expense	$2,569

The Company recognized an income tax provision of $2.6 million for the year ended December 31, 2022 as a result of their taxable income related to an upfront payment received under the Moderna Agreement and capitalization of their research and development expenses under the newly enacted Internal Revenue Code Section 174 ("Section 174"), which became effective on January 1, 2022. Section 174 changed the tax treatment of research and experimentation (R&E) expenditures, which requires the capitalization of R&E expenditures over a period of five years for R&E paid or incurred in the United States and 15 years for R&E paid or incurred outside of the United States.

During the year ended December 31, 2021, the Company had no income tax expense, and all losses were from the U.S.

The effective tax rate of the Company's provision for income taxes differs from the federal statutory rate of 21% for the years ended December 31, 2021 and 2022, is as follows:

	Years ended December 31,	
	2021	2022
Statutory rate	21.00 %	21.00 %
Nontaxable LLC losses	(15.99)%	(0.13)%
State tax rate	1.60 %	9.73 %
Permanent and other adjustments	(0.12)%	(1.31)%
Change in valuation allowance	(6.49)%	(41.02)%
Research credits	0.00 %	5.47 %
Total	0.00 %	(6.26)%

Significant components of the deferred tax assets for federal and state income taxes as of December 31, 2021 and 2022, are as follows (in thousands):

	Years ended December 31,	
	2021	2022
Deferred Tax Assets:		
Net operating loss carry forwards	$ 1,601	$ 655
Research credits	232	1,568
Reserves and accruals	618	1,326
Lease liability	5,226	5,199
Deferred revenue	—	8,465
Capitalized research and development expenses	—	8,901
Total deferred tax assets	7,677	26,114
Deferred Tax Liabilities:		
Property and equipment	(607)	(2,583)
Right-of-use asset	(5,051)	(4,685)
Total gross deferred tax liabilities	(5,658)	(7,268)
Less: Valuation allowance	(2,019)	(18,846)
Net deferred tax assets	$ —	$ —

A valuation allowance is required to be established when it is more likely than not that all or a portion of a deferred tax asset will not be realized. Realization of deferred tax assets is dependent upon future earnings, the timing and amount of which are uncertain. Metagenomi Inc. believes that, based on a number of factors such as the history of operating losses, it is more likely than not that the deferred tax assets will not be fully realized, such that a full valuation allowance has been recorded. The valuation allowance increased by $1.4 million and $16.8 million for the years ended December 31, 2021 and 2022, respectively, primarily due to the increase in deferred revenue and capitalization of research and development expenses under newly enacted Section 174.

As of December 31, 2022, Metagenomi Inc. had $0.02 million and $8.3 million of net operating loss carryforwards for federal and state income tax purposes, respectively. Federal net operating loss carryforwards do not expire. State net operating loss carryforwards begin expiring in 2037.

As of December 31, 2022, Metagenomi Inc. had $0 and $2.8 million of research credit carryforwards for federal and state income tax purposes, respectively. State research credit carryforwards do not expire and can be carried forward indefinitely.

Utilization of some of the federal and state net operating losses and credit carryforwards may be subject to annual limitations due to the change in ownership provisions of the Internal Revenue Code of 1986 (“Internal Revenue Code”) and similar state provisions. The annual limitation may result in the expiration of net operating losses and credits before utilization. As of December 31, 2022, the Company has completed an IRC Section 382 analysis from inception through the year ended December 31, 2022. The Company experienced two ownership changes in August 2019 and January 2022. Net operating losses generated prior to December 31, 2017, of $0.3 million are permanently limited for federal tax purposes. Net federal operating losses generated after December 31, 2017 are not limited as they can be carried forward indefinitely, subject to an 80% income limitation. Net operating losses of $0.1 million are permanently limited for California tax purposes.

Metagenomi Inc. uses the “more likely than not” criterion for recognizing the income tax benefit of uncertain income tax positions and establishing measurement criteria for income tax benefits. Although it is reasonably

possible that certain unrecognized tax benefits may increase or decrease within the next twelve months due to tax examination changes, settlement activities, expirations of statute of limitations, or the impact on recognition and measurement considerations related to the results of published tax cases or other similar activities, Metagenomi Inc. does not anticipate significant changes to unrecognized tax benefits over the next 12 months. During the years ended December 31, 2021 and 2022, no interest or penalties were recognized relating to unrecognized tax benefits. In the event Metagenomi Inc. should need to recognize interest and penalties related to unrecognized income tax liabilities, this amount will be recorded as an accrued liability and an increase to income tax expense.

The changes in the balance of gross unrecognized tax benefits, which excludes interest and penalties, for the years ended December 31, 2021 and 2022, are as follows (in thousands):

	Years ended December 31,	
	2021	2022
Beginning balance	$131	$ 131
Gross increases—tax position in current period	—	1,231
Gross increases—tax position in prior periods	—	426
Reductions for tax positions of prior years	—	(33)
Ending balance	$131	$1,755

Metagenomi Inc. files tax returns in the U.S. and California. Metagenomi Inc. is not currently under examination in any of these jurisdictions and all its tax years remain effectively open to examination due to net operating losses from inception. Metagenomi Inc. recognized $1.0 million of uncertain tax positions as other non-current liabilities and $0.8 million was netted against deferred tax assets.

In accordance with the Tax Cuts and Jobs Act of 2017, research and experimental (R&E) expenses under Internal Revenue Code Section 174 are required to be capitalized beginning in 2022. R&E expenses are required to be amortized over a period of 5 years for domestic expenses and 15 years for foreign expenses.

On August 16, 2022, President Biden signed into law the Inflation Reduction Act of 2022, which includes an Alternative Minimum Tax based on the Adjusted Financial Statement Income of Applicable Corporations. Based on an initial evaluation, the Company does not believe the Inflation Reduction Act will have a material impact on the income tax provision and cash taxes. The Company will continue to monitor the changes in tax laws and regulations to evaluate their potential impact on the business.

16. Net loss per unit

Basic and diluted net loss per unit attributable to common unitholders is calculated as follows (in thousands except share and per share amounts):

	Years ended December 31	
	2021	2022
Numerator:		
Net loss attributable to common members	$ (21,442)	$ (43,593)
Denominator:		
Weighted average common units outstanding	5,947,500	5,947,500
Less: Weighted-average unvested common units subject to repurchase	(256,069)	(8,846)
Weighted average units used to computing basic and diluted net loss per share	5,691,431	5,938,654
Net loss per unit attributable to common unitholders—basic and diluted:	$ (3.77)	$ (7.34)

The following outstanding potentially dilutive securities have been excluded from the calculation of diluted net loss per unit, as their effect is anti-dilutive:

	Years ended December 31,	
	2021	2022
Redeemable convertible preferred units	19,650,632	41,478,621
Profits interests	5,783,758	7,516,073
Unvested common units	78,750	—
Total	25,513,140	48,994,694

17. Employee retirement plan

The Company has a defined contribution plan under Section 401(k) of the Internal Revenue Code (the "401(k) Plan"), covering its employees. Employees may contribute a percentage of their annual compensation to this plan, subject to the maximum allowable amount set by the Internal Revenue Service. The 401(k) Plan provides that the Company matches each participant's contribution at 100% up to the first 5% of the employee's eligible compensation. The Company's contributions to the 401(k) Plan were $0.2 million and $0.6 million for the years ended December 31, 2021 and 2022, respectively.

18. Subsequent events

The Company has reviewed and evaluated subsequent events through August 3, 2023, the date that the consolidated financial statements were available to be issued.

In January 2023, the Company sold an additional 334,754 Series B-1 redeemable convertible preferred units in accordance with the Series B-1 purchase agreement and received gross cash proceeds of $4.7 million.

In March and June 2023, the Company granted 450,860 and 1,530,523 profits interests to officers, employees and consultants with a threshold amount of $5.75 and $7.40, respectively. These profits interests vest over a period of two to four years.

19. Subsequent events (unaudited)

The Company has reviewed and evaluated subsequent events through September 7, 2023, the date that the consolidated financial statements were available to be reissued.

Profits Interests Grants

In September 2023, the Company granted 274,830 profits interests awards to officers, employees and consultants with a threshold amount of $11.84. In July and September 2023, the Company canceled and re-issued 781,312 profits interests awards with thresholds of $7.40 and $11.84. Issued profits interests vest over a period of two to four years.

Amendment to the LLC Agreement

The Company's LLC Agreement was amended on July 31, 2023 to provide for "catch-up" distributions for profits interests once the applicable catch-up threshold amount for such profits interests was met (the "Amendment to the LLC Agreement").

The LLC Agreement provides each profits interest with a distribution threshold amount, which is determined on the date of issuance and represents the amount that would be distributed if, immediately after issuance, the

Company sold all of its assets at fair market value and distributed the net proceeds in liquidation. A profits interest does not participate in Company distributions until an amount equal to its distribution threshold amount has been distributed to other members of the Company with units that either have a lower threshold amount or no threshold amount.

Once the applicable distribution threshold amount has been met for a particular profits interest, such profits interest will participate in Company distributions on a pro rata basis until the catchup threshold amount has been met. Once the catch-up threshold amount has been met, subsequent “catch-up” distributions will be made solely to holders of profits interests until such holders have received an amount equal to the amount such holders would have received had the distribution threshold not existed. Once the profits interest holders have received distributions in an amount equal to what they would have received had the distribution threshold not existed, all subsequent distributions are made on a pro rata basis with common unitholders.

The catch-up threshold amount of $11.84 per unit reflected the estimated fair value of the Company’s common unit as of July 31, 2023, as determined by the Company’s board of managers, with input from management, and considering the Company’s most recently available third-party valuations of common units. The amendment to the LLC Agreement resulted in a change to the fair value of the profits interests and will be accounted for as a modification of the profits interests’ awards.

Condensed Consolidated Balance Sheets

(in thousands, except units)
(unaudited)

	December 31, 2022	June 30, 2023
Assets		
Current assets:		
Cash and cash equivalents	$ 184,441	$ 51,648
Available-for-sale marketable securities	177,690	266,792
Accounts receivable	—	2,328
Contract assets	1,274	—
Prepaid expenses and other current assets	3,494	3,470
Total current assets	366,899	324,238
Property and equipment, net	16,522	20,834
Long-term investments	7,806	10,676
Operating lease right-of-use assets	16,736	45,540
Other assets	450	2,123
Restricted cash	6,073	5,248
Total assets	$ 414,486	$ 408,659
Liabilities, redeemable convertible preferred units and members' deficit		
Current liabilities:		
Accounts payable	$ 2,011	$ 2,993
Income tax payable	1,536	2,714
Accrued expenses and other current liabilities	8,790	10,369
Current portion of operating lease liabilities	1,515	1,843
Collaboration advance	743	405
Deferred revenue	33,942	46,007
Total current liabilities	48,537	64,331
Non-current portion of operating lease liabilities	17,056	46,619
Deferred revenue, non-current	76,185	47,790
Other non-current liabilities	1,033	1,700
Total liabilities	142,811	160,440
Commitments and contingencies (Note 8)		
Redeemable convertible preferred units: 41,813,375 units authorized as of December 31, 2022 and June 30, 2023; 41,478,621 and 41,813,375 units issued and outstanding as of December 31, 2022 and June 30, 2023, respectively. Liquidation preference $347,335 and $352,044 as of December 31, 2022 and June 30, 2023, respectively	346,103	350,758
Members' deficit:		
Common units: 66,000,000 units authorized as of December 31, 2022 and June 30, 2023; 5,947,500 units issued and outstanding as of December 31, 2022 and June 30, 2023	26	26
Profits interests: 14,604,165 units authorized as of December 31, 2022 and June 30, 2023; 7,516,073 and 9,370,804 units issued and outstanding as of December 31, 2022 and June 30, 2023, respectively	2,509	3,694
Accumulated other comprehensive loss	(274)	(429)
Accumulated deficit	(76,689)	(105,830)
Total members' deficit	(74,428)	(102,539)
Total liabilities, redeemable convertible preferred units and members' deficit	$ 414,486	$ 408,659

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Condensed Consolidated Statements of Operations and Comprehensive Loss

(in thousands, except units and per unit data)
(unaudited)

	Six months ended June 30,	
	2022	**2023**
Collaboration revenue	$ 6,692	$ 19,994
Operating expenses:		
Research and development	16,855	42,811
General and administrative	7,834	13,084
Total operating expenses	24,689	55,895
Loss from operations	(17,997)	(35,901)
Other income (expense)		
Interest expense	(98)	—
Interest income	411	7,970
Change in fair value of long-term investments	94	2,870
Other income, net	97	15
Total other income, net	504	10,855
Net loss before provision for income taxes	(17,493)	(25,046)
Provision for income taxes	(1,092)	(4,095)
Net loss	$ (18,585)	$ (29,141)
Other comprehensive loss:		
Unrealized loss on available-for-sale marketable securities, net	(170)	(155)
Other comprehensive loss	$ (18,755)	$ (29,296)
Net loss per unit attributable to common unitholders, basic and diluted	$ (3.13)	$ (4.90)
Weighted average common units outstanding, basic and diluted	5,929,662	5,947,500

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Condensed Consolidated Statements of Redeemable Convertible Preferred Units and Members' Deficit

(in thousands, except units)
(unaudited)

	Redeemable Convertible Preferred Units		Common Units		Profits Interests		Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Members' Deficit
	Units	Amount	Units	Amount	Units	Amount			
BALANCE—January 1, 2022	19,650,632	$ 76,495	5,947,500	$ 26	5,783,758	$ 547	$ (21)	$ (33,096)	$ (32,544)
Issuance of Series B redeemable convertible preferred units for cash, net of issuance costs of $697	12,446,876	144,304	—	—	—	—	—	—	—
Issuance of Series B redeemable convertible preferred units upon conversion of convertible note and accrued interest	2,607,387	30,374	—	—	—	—	—	—	—
Issuance of profits interests	—	—	—	—	2,166,221	—	—	—	—
Cancellation and forfeiture of profits interests	—	—	—	—	(543,469)	—	—	—	—
Unit-based compensation expense	—	—	—	—	—	896	—	—	896
Other comprehensive loss	—	—	—	—	—	—	(170)	—	(170)
Net loss	—	—	—	—	—	—	—	(18,585)	(18,585)
BALANCE—June 30, 2022	34,704,895	$251,173	5,947,500	$ 26	7,406,510	$ 1,443	$ (191)	$ (51,681)	$ (50,403)
BALANCE—January 1, 2023	41,478,621	$346,103	5,947,500	$ 26	7,516,073	$ 2,509	$ (274)	$ (76,689)	$ (74,428)
Issuance of Series B-1 Preferred Units, net of issuance costs of $54	334,754	4,655							—
Issuance of profits interests					1,992,983				—
Cancellation and forfeiture of profits interests					(138,252)				—
Unit-based compensation expense						1,185			1,185
Other comprehensive loss							(155)		(155)
Net loss								(29,141)	(29,141)
BALANCE—June 30, 2023	41,813,375	$350,758	5,947,500	$ 26	9,370,804	$ 3,694	$ (429)	$ (105,830)	$(102,539)

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Condensed Consolidated Statements of Cash Flows

(in thousands)
(unaudited)

	Six months ended June 30,	
	2022	2023
Cash flows from operating activities		
Net loss	$ (18,585)	$ (29,141)
Adjustments to reconcile net loss to net cash used in operating activities		
Unit-based compensation expense	896	1,185
Depreciation and amortization	522	1,852
Loss on fixed assets write-off	268	—
Non-cash lease expense	644	2,042
Amortization of premiums and discounts on available-for-sale marketable securities	211	(4,536)
Amortization of non-cash collaboration revenue	—	(507)
Non-cash interest expense	98	—
Change in fair value of long-term investments	(94)	(2,870)
Changes in operating assets and liabilities:		
Accounts receivable	—	(2,328)
Contract assets	—	1,274
Prepaid expenses and other current assets	(780)	34
Other assets	40	(13)
Accounts payable	454	882
Income tax payable	653	1,178
Deferred revenue and collaboration advance	(8,144)	(16,161)
Accrued expenses and other current liabilities	495	72
Operating lease liabilities	(184)	(717)
Other non-current liabilities	439	667
Net cash used in operating activities	(23,067)	(47,087)
Cash flows from investing activities		
Purchases of property and equipment	(7,189)	(5,818)
Purchases of available-for-sale marketable securities	(88,469)	(168,977)
Maturities and sales of available-for-sale marketable securities	28,530	84,008
Net cash used in investing activities	(67,128)	(90,787)
Cash flows from financing activities		
Payments of initial public offering costs	—	(39)
Proceeds from issuance of redeemable convertible preferred units, net of issuance costs	144,304	4,295
Net cash provided by financing activities	144,304	4,256
Net change in cash, cash equivalents and restricted cash	54,109	(133,618)
Cash, cash equivalents and restricted cash at the beginning of the period	43,396	190,514
Cash, cash equivalents and restricted cash at the end of the period	$ 97,505	$ 56,896
Reconciliation of cash, cash equivalents and restricted cash		
Cash and cash equivalents	$ 93,405	$ 51,648
Restricted cash	4,100	5,248
Cash, cash equivalents and restricted cash at the end of the period	$ 97,505	$ 56,896

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Condensed Consolidated Statements of Cash Flows (Continued)

(in thousands)
(unaudited)

	Six months ended June 30,	
	2022	**2023**
Supplemental cash flow information		
Issuance of Series B redeemable convertible preferred units upon conversion of convertible promissory note and accrued interest	$30,374	$ —
Common shares of Affini-T received for collaboration revenue	$ 1,295	$ —
Operating lease right-of-use assets obtained in exchange for new lease liabilities	$ —	$30,608
Purchases of property and equipment included in accounts payable and accrued expenses and other current liabilities	$ 2,114	$ 1,593
Deferred finance issuance costs included in accounts payable and accrued expenses and other current liabilities	$ —	$ 1,621

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

Notes to the Unaudited Condensed Consolidated Financial Statements

1. Description of business, organization and liquidity

Organization and business

Metagenomi Technologies, LLC ("Metagenomi"), together with its wholly owned subsidiary Metagenomi, Inc. ("Metagenomi Inc.") (together, the "Company") is a gene editing biotechnology company developing therapeutics by leveraging a toolbox of next-generation gene editing systems to accurately edit DNA.

Liquidity and going concern

The Company has incurred significant losses from operations since its inception. During the six months ended June 30, 2022 and 2023, the Company incurred net losses of $18.6 million and $29.1 million, respectively. As of June 30, 2023, the Company had an accumulated deficit of $105.8 million.

The Company has historically financed its operations primarily through issuance of redeemable convertible preferred units, convertible promissory notes and its collaboration agreements with Moderna, Affini-T and Ionis (see Note 7). The Company expects to continue to incur substantial losses, and its ability to achieve and sustain profitability will depend on the successful development, approval, and commercialization of any product candidates it may develop, and on the achievement of sufficient revenue to support its cost structure. The Company may never achieve profitability and, unless and until it does, it will need to continue to raise additional capital. Management expects that existing cash, cash equivalents and available-for-sale marketable securities of $318.4 million as of June 30, 2023, will be sufficient to fund its current operating plan for at least the next 12 months from the date of issuance of these condensed consolidated financial statements.

2. Summary of significant accounting policies

Basis of presentation

These condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") and pursuant to the rules and regulations of the Securities and Exchanges Commission ("SEC") regarding interim financial reporting. The accompanying condensed consolidated financial statements include the accounts of Metagenomi and Metagenomi Inc., a wholly owned subsidiary. All intercompany balances and transactions have been eliminated in consolidation.

The interim condensed consolidated balance sheet as of June 30, 2023, and the condensed consolidated statements of operations, and cash flows for the six months ended June 30, 2022 and 2023 are unaudited. The unaudited interim condensed consolidated financial statements have been prepared on the same basis as the annual consolidated financial statements and reflect, in the opinion of management, all adjustments of a normal and recurring nature that are necessary for the fair statement of the Company's financial position as of June 30, 2023 and its results of operations and cash flows for the six months ended June 30, 2022 and 2023. The financial data and the other financial information disclosed in these notes to the condensed consolidated financial statements related to the six-month periods are also unaudited. The results of operations for the six months ended June 30, 2023 are not necessarily indicative of the results to be expected for the year ending December 31, 2023, or for any other future annual or interim period. The condensed consolidated balance sheet as of December 31, 2022, included herein was derived from the audited consolidated financial statements as of that date. Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted from these interim condensed consolidated financial statements. These unaudited condensed financial statements should be read in conjunction with the Company's audited consolidated financial statements included elsewhere in this prospectus.

Notes to the Unaudited Condensed Consolidated Financial Statements

Any reference in these notes to applicable guidance is meant to refer to the authoritative GAAP as found in the Accounting Standards Codification ("ASC") and Accounting Standards Updates ("ASU") of the Financial Accounting Standards Board ("FASB").

Use of estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of expenses during the reporting period. On an ongoing basis, the Company evaluates estimates and assumptions, including but not limited to those related to revenue recognition under its collaboration agreements, the fair value of its common and redeemable convertible preferred units, the fair value of derivative liabilities, unit-based compensation expense, accruals for research and development expenses, the fair value of long-term investments, the valuation of deferred tax assets and uncertain income tax positions. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from those estimates.

Risks and uncertainties

The Company is subject to certain risks and uncertainties, including, but not limited to, changes in any of the following areas that the Company believes could have a material adverse effect on the future financial position or results of operations: the Company's ability to advance the development of its next generation gene-editing platform, timing and ability to advance any product candidates it may develop into and through pre-clinical and clinical development; costs and timelines associated with the manufacturing of clinical supplies of any product candidates the Company may develop; regulatory approval, market acceptance of, and reimbursement for any product candidates the Company may develop; performance of third-party vendors; competition from pharmaceutical or other gene-editing companies with greater financial resources or expertise; protection of intellectual property; litigation or claims against the Company based on intellectual property or other factors; and its ability to attract and retain employees necessary to support its growth.

The Company's business and operations may be affected by worldwide economic conditions, which may continue to be impacted by global macroeconomic challenges such as the effects of the ongoing geopolitical conflicts in Ukraine, tensions in U.S.-China relations, the COVID-19 pandemic, uncertainty in the markets, including disruptions in the banking industry, and inflationary trends. Fiscal year 2022 was marked by significant market uncertainty, increasing inflationary pressures. These market dynamics may continue into 2023 and these and similar adverse market conditions may negatively impact the Company's operations and financial position.

Concentration of credit risk

Cash and cash equivalents, available-for-sale marketable securities and preferred and common stock shares related to our investment in Affini-T (Note 5) are financial instruments that potentially subject the Company to concentrations of credit risk. As of December 31, 2022 and June 30, 2023, cash consists of cash deposited with two financial institutions and account balances exceed federally insured limits.

Notes to the Unaudited Condensed Consolidated Financial Statements

On March 10, 2023, SVB was closed by the California Department of Financial Protection and Innovation, which appointed the Federal Deposit Insurance Corporation ("FDIC") as receiver. On March 12, 2023 the FDIC transferred all deposits, both insured and uninsured, and substantially all assets from the former SVB to a newly created, full-service FDIC-operated "bridge bank", Silicon Valley Bridge Bank, N.A. ("SVBB") and the FDIC, Treasury Department, and Federal Reserve announced that all deposits will be fully protected, whether or not they had been insured by the FDIC. On March 27, 2023, First-Citizens Bank & Trust Company assumed all of SVBB's customer deposits and certain other liabilities and acquired substantially all of SVBB's loans and certain other assets from the FDIC. As of June 30, 2023, the Company's held cash and cash equivalents of $47.9 million at SVB. As of the date of the issuance of these condensed consolidated financial statements, the Company has full access to and control over all its cash, cash equivalents and available-for-sale marketable securities.

The Company also has investments in money market funds, U.S. Treasuries, corporate debt obligations, commercial paper, government agency obligations and asset-backed securities, which can be subject to certain credit risks. The Company mitigates the risks by investing in high-grade instruments, limiting its exposure to any one issuer and monitoring the ongoing creditworthiness of the financial institutions and issuers. The Company has not experienced any losses on its financial instruments.

Concentration of collaboration revenue, accounts receivable and contract assets

The following table summarizes the percentages of collaboration revenues, accounts receivable and contract assets from each of the Company's customers that individually accounted for 10% or more of its collaboration revenues, accounts receivable and contract assets:

	Collaboration revenue	
	Six months ended June 30,	
	2022	2023
Customer A	100%	45%
Customer B	0%	42%
Customer C	0%	13%
	100%	100%

	Contract assets	
	December 31, 2022	June 30, 2023
Customer C	100%	0%
	100%	**0%**

	Accounts receivable	
	December 31, 2022	June 30, 2023
Customer C	0%	100%
	0%	**100%**

The Company reviews its accounts receivable and contract assets for impairment and credit loss allowance. No impairment or credit loss allowance was recorded as of December 31, 2022 and June 30, 2023.

Notes to the Unaudited Condensed Consolidated Financial Statements

Deferred finance issuance costs

Deferred finance issuance costs, consisting of legal fees relating to in-process equity financings and initial public offering are capitalized. The deferred finance issuance costs will be offset against offering proceeds upon the completion of the financing or the offering. In the event the financing or the offering is terminated or delayed, deferred finance issuance costs will be expensed immediately as a charge to general and administrative expenses in the condensed consolidated statements of operations and comprehensive loss. The Company had no deferred finance issuance costs capitalized and $1.7 million of deferred finance issuance costs as of December 31, 2022 and June 30, 2023, respectively, included in other assets in the condensed consolidated balance sheets.

Recently issued accounting pronouncements

The Company noted no recently issued accounting pronouncements that will impact its condensed consolidated financial statements and were not adopted by the Company. No new accounting pronouncements were adopted during the six months ended June 30, 2023.

3. Fair value measurements

Assets and liabilities recorded at fair value on a recurring basis in the condensed consolidated balance sheets, are categorized based upon the level of judgment associated with inputs used to measure their fair values. The accounting guidance for fair value provides a framework for measuring fair value and requires certain disclosures about how fair value is determined. The accounting guidance establishes a three-level valuation hierarchy that prioritizes the inputs to valuation techniques used to measure fair value based upon whether such inputs are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect market assumptions made by the reporting entity. The three-level hierarchy for the inputs to valuation techniques is briefly summarized as follows:

Level 1 — Inputs are unadjusted, quoted prices in active markets for identical assets or liabilities at the measurement date;

Level 2 — Inputs are observable, unadjusted quoted prices in active markets for similar assets or liabilities, unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the related assets or liabilities; and

Level 3 **—** Unobservable inputs that are significant to the measurement of the fair value of the assets or liabilities that are supported by little or no market data.

Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. An assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability. Changes in the ability to observe valuation inputs may result in a reclassification of levels of certain securities within the fair value hierarchy. The Company recognizes transfers into and out of levels within the fair value hierarchy in the period in which the actual event or change in circumstances that caused the transfer occurs.

The Company's financial instruments measured at fair value on a recurring basis consist of Level 1, Level 2, and Level 3 financial instruments. Usually, marketable securities are considered Level 2 when their fair values are

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determined using inputs that are observable in the market or can be derived principally from or corroborated by observable market data such as pricing for similar securities, recently executed transactions, cash flow models with yield curves, and benchmark securities. In addition, Level 2 financial instruments are valued using comparisons to like-kind financial instruments and models that use readily observable market data as their basis. U.S. Government bonds, corporate debt obligations, commercial paper, government agency obligations and asset-backed securities are valued primarily using market prices of comparable securities, bid/ask quotes, interest rate yields and prepayment spreads and are included in Level 2.

Financial assets and liabilities are considered Level 3 when their fair values are determined using pricing models, discounted cash flow methodologies, or similar techniques, and at least one significant model assumption or input is unobservable. The Company's investments in preferred stock and common stock shares of Affini-T Therapeutics Inc. ("Affini-T") (see Note 5) are Level 3 financial assets.

The following table summarizes the estimated fair value of the financial instruments that were measured at fair value on a recurring basis by level within the fair value hierarchy as of December 31, 2022 (in thousands):

	December 31, 2022			
	Total	Level 1	Level 2	Level 3
Assets:				
Money market funds (included in cash and cash equivalents)	$ 182,441	$ 182,441	$ —	$ —
U.S. Treasury bills(1)	14,821	—	14,821	—
U.S. Government bonds	14,651	—	14,651	—
Government agency obligations	22,468	—	22,468	—
Corporate debt obligations	25,900	—	25,900	—
Commercial paper	88,447	—	88,447	—
Asset-backed securities	11,403	—	11,403	—
Long-term investments (Note 5)	5,651	—	—	5,651
Total fair value of assets	$ 365,782	$ 182,441	$ 177690	$ 5,651

(1) Certain prior period amounts have been reclassified to conform to the current period presentation.

The following table summarizes the estimated fair value of the financial instruments that were measured at fair value on a recurring basis by level within the fair value hierarchy as of June 30, 2023 (in thousands):

	June 30, 2023			
	Total	Level 1	Level 2	Level 3
Assets:				
Money market funds (included in cash and cash equivalents)	$ 46,801	$46,801	$ —	$ —
U.S. Treasury bills	49,956	—	49,956	—
U.S. Government bonds	8,945	—	8,945	—
Government agency obligations	55,741	—	55,741	—
Corporate debt obligations	41,161	—	41,161	—
Commercial paper	100,320	—	100,320	—
Asset-backed securities	7,252	—	7,252	—
Foreign debt securities	3,417	—	3,417	—
Long-term investments (Note 5)	8,521	—	—	8,521
Total fair value of assets	$ 322,114	$46,801	$266,792	$8,521

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In addition, restricted cash of $6.1 million and $5.2 million as of December 31, 2022 and June 30, 2023, respectively, collateralized by the Company's cash equivalents, are financial assets measured at fair value and are Level 1 financial instruments under the fair value hierarchy.

The Company's investments in shares of Affini-T common stock and preferred stock are accounted at fair value and are Level 3 investments. The fair value is estimated based on information available to management including recent financing transactions, capitalization and rights and preferences of outstanding securities and is based on option-pricing model. The estimated fair value of the Company's investment in Affini-T was $5.7 million and $8.5 million as of December 31, 2022 and June 30, 2023, respectively.

The following table sets forth a summary of the changes in the fair value of the Company's Level 3 financial assets (in thousands):

	2022	2023
Fair value as of January 1	$4,262	$5,651
Change in fair value included in other income (expense)	94	2,870
Fair value of investment received as collaboration consideration (Note 7)	1,295	—
Fair value as of June 30	$5,651	$8,521

There were no transfers within the fair value hierarchy during the six months ended June 30, 2022 and 2023.

4. Available-for-sale marketable securities

The following table summarizes the amortized cost, unrealized gains (losses) and estimated fair value of the available-for-sale marketable securities as of December 31, 2022 (in thousands):

	Amortized cost	Unrealized gains	Unrealized losses	Estimated fair value
Money market funds	$ 182,441	$ —	$ —	$ 182,441
U.S. Treasury bills	14,818	3	—	14,821
U.S. Government bonds	14,720	—	(69)	14,651
Government agency obligations	22,431	41	(4)	22,468
Corporate debt obligations	26,041	10	(151)	25,900
Commercial paper	88,447	—	—	88,447
Asset-backed securities	11,508	—	(105)	11,403
Total	360,406	54	(329)	360,131
Less: amounts classified as cash equivalents	(182,441)	—	—	(182,441)
Total available-for-sale marketable securities	$ 177,965	$ 54	$ (329)	$ 177,690

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The following table summarizes the amortized cost, unrealized gains (losses) and estimated fair value of the available-for-sale marketable securities as of June 30, 2023 (in thousands):

	Amortized cost	Unrealized gains	Unrealized losses	Estimated fair value
Money market funds	$ 46,801	$ —	$ —	$ 46,801
U.S. Treasury bills	49,972	2	(18)	49,956
U.S. Government bonds	8,988	—	(43)	8,945
Government agency obligations	55,897	9	(165)	55,741
Corporate debt obligations	41,312	—	(151)	41,161
Commercial paper	100,320	—	—	100,320
Asset-backed securities	7,291	—	(39)	7,252
Foreign debt securities	3,441	—	(24)	3,417
Total	314,022	11	(440)	313,593
Less: amounts classified as cash equivalents	(46,801)	—	—	(46,801)
Total available-for-sale marketable securities	$ 267,221	$ 11	$ (440)	$ 266,792

As of December 31, 2022 and June 30, 2023, no significant facts or circumstances were present to indicate a deterioration in the creditworthiness of the issuers of the available-for-sale securities, and the Company has no requirement or intention to sell these securities before maturity or recovery of their amortized cost basis. The Company considered the current and expected future economic and market conditions and determined that its investments were not significantly impacted. For all securities with a fair value less than its amortized cost basis, the Company determined the decline in fair value below amortized cost basis to be immaterial and non-credit related, and therefore no allowance for losses has been recorded. During the six months ended June 30, 2022 and 2023, the Company did not recognize any impairment losses on its investments.

The Company's policy is to exclude the applicable accrued interest from both the fair value and the amortized cost basis of its available-for-sale securities for purposes of identifying and measuring an impairment. The Company presents accrued interest receivable related to the available-for-sale securities in prepaid expenses and other current assets, separate from available-for-sale marketable securities in the condensed consolidated balance sheets. As of December 31, 2022 and June 30, 2023, accrued interest receivable was $0.3 million and $0.7 million, respectively. The Company's accounting policy is to not measure an allowance for credit losses for accrued interest receivable and to write-off any uncollectible accrued interest receivable as a reversal of interest income in a timely manner, which it considers to be in the period in which the Company determines the accrued interest will not be collected. The Company has not written off any accrued interest receivable for the six months ended June 30, 2022 and 2023.

The amortized cost and fair value of available-for-sale marketable securities by contractual maturity were as follows as of December 31, 2022 (in thousands):

	Amortized cost	Estimated fair value
Maturing within one year	$ 163,259	$ 163,030
Maturing in one to five years	14,706	14,660
Total available-for-sale marketable securities	$ 177,965	$ 177,690

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The amortized cost and fair value of available-for-sale marketable securities by contractual maturity were as follows as of June 30, 2023 (in thousands):

	Amortized cost	Estimated fair value
Maturing within one year	258,145	257,813
Maturing in one to five years	9,076	8,979
Total available-for-sale marketable securities	267,221	266,792

5. Long-term investments

Affini-T investment

As of December 31, 2022 and June 30, 2023, the Company had investments in shares of preferred stock and common stock of Affini-T. The Company performed a VIE analysis and concluded that it was not a primary beneficiary of Affini-T as of December 31, 2022 and June 30, 2023. The Company is using the fair value method to account for its investments in Affini-T with changes in fair value recorded to the condensed consolidated statements of operations and other comprehensive loss (see Note 3).

As of December 31, 2022, the fair value of common stock shares was estimated by management, considering the most recent third-party valuation, and the fair value of preferred stock shares was estimated based on recent sales of similar preferred stock to another investor for cash. As of June 30, 2023, the fair values of common stock and preferred stock shares were estimated by management using an option-pricing valuation model and recent financing transactions at Affini-T. The Company recognized changes in fair value of $0.1 million and of $2.9 million for the six months ended June 30, 2022 and 2023, respectively.

No impairment loss was recognized on the Company's investment in Affini-T as of December 31, 2022 or June 30, 2023.

ViTToria investment

As of December 31, 2022 and June 30, 2023, the Company had investment in shares of preferred stock of ViTToria Biotherapeutics, Inc. ("Vittoria"), a private biotechnology company. The Company accounts for its investment in Vittoria using the measurement alternative method. As of December 31, 2022 and June 30, 2023, the carrying value of Vittoria's investment was $2.2 million and no impairment was recognized.

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6. Condensed consolidated balance sheets components

Property and equipment, net consists of the following (in thousands):

	Useful life	December 31, 2022	June 30, 2023
Laboratory equipment	5	$ 13,455	$18,259
Leasehold improvements	lesser of useful life or the lease term	3,531	3,786
Furniture and fixtures	3-5	328	354
Computers and related equipment	3-5	54	502
Construction in progress		1,402	2,033
Total property and equipment		18,770	24,934
Less: Accumulated depreciation and amortization		(2,248)	(4,100)
Total property and equipment, net		$ 16,522	$20,834

Depreciation and amortization expense was $0.5 million and $1.9 million for the six months ended June 30, 2022 and 2023, respectively.

Prepaid expenses and other current assets consist of the following (in thousands):

	December 31, 2022	June 30, 2023
Payroll tax credit	$ 289	$ 289
Interest receivable on available-for-sale marketable securities	261	668
Prepaid research and development expenses	685	619
Grant income receivable	125	200
Other prepaid expenses and other current assets	2,134	1,694
Total prepaid expenses and other current assets	$ 3,494	$ 3,470

Other assets consist of the following (in thousands):

	December 31, 2022	June 30, 2023
Operating lease deposit	$ 237	$ 237
Long-term prepaid services	213	226
Deferred finance issuance costs	—	1,660
Total other assets	$ 450	$ 2,123

Notes to the Unaudited Condensed Consolidated Financial Statements

Accrued expenses and other current liabilities consist of the following (in thousands):

	December 31, 2022	June 30, 2023
Accrued personnel related expenses	$ 4,819	$ 3,881
Accrued legal and professional services	1,200	2,594
Accrued purchases of property and equipment	896	1,261
Accrued research and development expenses	1,684	2,162
Other accrued liabilities	191	471
Total accrued expenses and other current liabilities	$ 8,790	$10,369

7. Significant agreements

Moderna strategic collaboration and license agreement

Terms of the agreement

On October 29, 2021, the effective date, the Company entered into a Strategic Collaboration and License Agreement (the "Moderna Agreement") with ModernaTX, Inc. ("Moderna"). The parties will collaborate on the research and development of in-vivo genome editing therapies directed at certain targets and the commercialization of such genome editing therapies. The collaboration provides Moderna with exclusive access to the Company's technology platform during the research period in (1) the field of in vivo gene editing technology for a therapeutic, ameliorative or prophylactic application by way of knock-out through InDel formation or base editing or insertion of an exogenous DNA template (such field, "DT Field") and (2) the field of in vivo gene editing technology for a therapeutic, ameliorative or prophylactic application outside the use of (a) DNA donor templates and (b) no exogenous template at all but including (c) correction by base editing (such field, "RT Field"). The parties formed a joint steering committee, a joint research subcommittee and a joint patent subcommittee to oversee the collaboration activities.

Under the terms of the Moderna Agreement, the parties will collaborate on one or more programs in the RT Field (the "Moderna RT program") and two programs in the DT Field (the "Moderna DT program" and the "DT Co-Co program").

With respect to the Moderna RT and Moderna DT programs, the parties will collaborate on the research and development of product candidates under the approved research plans. The initial research term of the Moderna RT program is four years, which may be extended by Moderna for an additional three years upon written notice and a payment of extension fees. The initial research term of the Moderna DT program is four years. The Company granted to Moderna an option to obtain an exclusive license to develop, manufacture and commercialize up to ten Moderna RT program candidates and up to two Moderna DT program candidates at any time during the research term and prior to filing of an investigational new drug ("IND") application with the Food and Drug Administration ("FDA") or any similar application filed with a regulatory authority in a country other than the United States ("U.S."), subject to Moderna's payment of an option exercise fee of $10.0 million per target.

With respect to the DT Co-Co program, the parties will work together on the co-development and commercialization of products and share costs and profits equally. The Company maintains commercialization rights in the U.S. (subject to Moderna's right to appoint up to 50% of the U.S. sales force for the DT Co-Co

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program), while Moderna maintains these rights in countries other than the U.S. The initial research term for the DT Co-Co program is four years, and each party has a right to opt-out of the DT Co-Co program at any time, at which point the other party has the right to solely continue the development and commercialization activities. If there is no development candidate nomination by the end of the initial research term, the DT Co-Co program will expire, unless the parties have mutually agreed to continue the program.

During the year ended December 31, 2021, the Company received a non-refundable upfront payment of $40.0 million and a $5.0 million payment for the first year of research costs. Concurrent with the Moderna Collaboration Agreement, Moderna also provided $30.0 million in cash in the form of a convertible promissory note pursuant to a convertible promissory note agreement dated October 29, 2021 (the “Moderna Convertible Promissory Note Agreement”). The convertible promissory note was converted into shares of Series B redeemable convertible preferred units in January 2022 (see Note 9). Moderna will reimburse the Company up to $5.0 million in annual research and development costs related to the Moderna DT and Moderna RT programs, or up to the agreed amount of expenses per the budget. As of June 30, 2023, the Company has received a total of $49.6 million under the Moderna Agreement, not including cost-sharing payments under the DT Co-Co program.

For the Moderna RT and Moderna DT programs, the Company is eligible to receive (i) technology milestone fees related to the achievement of certain preclinical research objectives, of up to $75.0 million, (ii) development and regulatory milestones of up to $100.0 million per target, (iii) sales milestones of up to $200.0 million per target and (iv) royalties ranging from a mid-single digit to a low-teens percentage of annual net sales of a licensed product. Any profits and losses from the DT Co-Co program are shared equally between the Company and Moderna. With respect to the co-development and commercialization of the DT Co-Co program for which the opt-out party has exercised its opt-out right, the continuing party will pay to the opt-out party, certain development, regulatory and sales milestone payments that will not exceed an aggregate $239.0 million per DT Co-Co target, and opt-out royalties ranging from a high-single digit to a low-teens percentage of annual net sales of a licensed product.

The term of the Moderna Agreement will continue on a licensed product-by-licensed product and country-by-country basis, until the expiration of the applicable royalty term. The royalty term commences on the first commercial sale of a licensed product and terminates on the latest of: (a) the expiration or abandonment of the last valid claim of a patent within the licensed Moderna DT or RT technology; (b) 10 years after the first commercial sale of a licensed product; and (c) expiration of the regulatory exclusivity. Upon the expiration of the term of a licensed product in the Moderna DT or Moderna RT program, the licenses granted to Moderna will survive and become perpetual, fully paid and royalty-free. Each party may terminate the Moderna Agreement on a program-by-program basis upon written notice to the other party for an uncured material breach or insolvency. The Company may terminate the Moderna Agreement upon written notice to Moderna for a patent challenge. Additionally, Moderna may terminate the agreement at its convenience with respect to Moderna DT or Moderna RT programs for any reason upon at least: (a) 60 days’ prior written notice if a first commercial sale has not occurred for the products in such program, or (b) 180 days’ prior written notice if a first commercial sale of a product in such program has occurred.

Accounting analysis and revenue recognition

The Company concluded that the Moderna DT and Moderna RT programs are in the scope of ASC 606. The Company determined that the licenses granted to Moderna, and its participation in the joint steering committee are not capable of being distinct from the preclinical research and development services and therefore concluded that there are two performance obligations: (1) the Moderna RT program and (2) the Moderna DT

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program. The Company also concluded that the option to obtain an exclusive license and options to extend Moderna RT program term do not include significant incremental discounts, and as such, the options do not provide material rights.

The Company concluded the DT Co-Co program research activities are within the scope of ASC 808, as the Company and Moderna are both active participants in the research, development and commercialization activities, are exposed to significant risks and rewards that are dependent on the success of the DT Co-Co program activities and share costs and profits equally. The Company determined that the guidance in ASC 730, *Research and Development*, was appropriate to apply to the DT Co-Co program research activities by analogy, based on the nature of the cost sharing provisions of the agreement. The Company concluded that DT Co-Co program is one unit of accounting, as the co-exclusive license is not distinct from the research and development and the participation in joint steering committee activities. The Company recognizes payments to or from Moderna related to the DT Co-Co program cost sharing research activities as an increase to or reduction of research and development expenses, respectively.

The Company concluded that the Moderna Collaboration Agreement and the Moderna Convertible Promissory Note Agreement should be combined and treated as a single arrangement for accounting purposes as the agreements were entered into contemporaneously and in contemplation of one another. The Company estimated the contract consideration to be $90.0 million, which consisted of: 1) the non-refundable upfront collaboration payment of $40.0 million received in 2021, 2) $30.0 million in cash received in 2021 in exchange for the convertible promissory note and 3) the estimated cost reimbursements for Moderna DT and Moderna RT programs of $20.0 million. The Company constrained future milestones, as it assessed that it is probable that the inclusion of such variable consideration could result in a significant reversal of cumulative revenue in future periods. During the year ended December 31, 2021, the Company recorded $30.0 million of the contract consideration for the convertible promissory note based on the fair value and allocated the transaction price of $60.0 million to each of the following programs on a relative standalone selling price basis: 1) $49.5 million to the Moderna RT program, 2) $5.5 million to the Moderna DT program, and 3) $5.0 million to the DT Co-Co program.

The variable consideration is reevaluated at each reporting period and as changes in circumstances occur. The Company recognizes revenue for each of the Moderna DT and Moderna RT programs as collaboration revenue based on the measure of progress using an estimated cost-based input method each reporting period. The Company also amortizes the allocation consideration for the DT Co-Co program of $5.0 million as a credit to research and development expenses during the discovery and lead optimization phases for the DT Co-Co program.

The Company recognized collaboration revenue of $6.7 million and $8.9 million in the condensed consolidated statements of operations and comprehensive loss for the six months ended June 30, 2022 and 2023, respectively. As of December 31, 2022 and June 30, 2023, deferred revenue related to the Moderna Agreement was $30.2 million and $21.0 million, respectively. Collaboration revenue recognized during the six months ended June 30, 2022 and 2023 included $6.7 million and $8.9 million that was included in deferred revenue as of December 31, 2021 and 2022, respectively. The value of the transaction price allocated to the remaining unsatisfied portion of the performance obligations was approximately $33.1 million as of June 30, 2023, which the Company expects to recognize as revenue over the next two-to-three years.

The Company recognized less than $0.1 million and $1.7 million in credits to research and development expenses related to cost sharing allocation and amortization of the collaboration advance, respectively, within research and development expenses in the condensed consolidated statement of operations and

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comprehensive loss during the six months ended June 30, 2022. The Company recognized $0.4 million and $0.4 million in credits to research and development expenses related to cost sharing allocation and amortization of the collaboration advance during the six months ended June 30, 2023, respectively. As of December 31, 2022, the collaboration advance balance was $1.1 million, partially offset by the cost-sharing receivable balance of $0.4 million, which was presented as a collaboration advance on the Company's condensed consolidated balance sheet. As of June 30, 2023, the collaboration advance balance was $0.8 million, partially offset by the cost-sharing receivable balance of $0.4 million, which was presented as a collaboration advance on the Company's condensed consolidated balance sheet.

Affini-T development, option and license agreement

Terms of the agreement

On June 14, 2022, the effective date, the Company entered into a Development, Option and License Agreement (the "Affini-T Agreement") with Affini-T. Pursuant to the Affini-T Agreement, the parties have agreed to identify, develop or optimize certain reagents using the Company's proprietary technology for Affini-T to use such reagents to develop and commercialize gene edited T-cell receptor ("TCR")-based therapeutic products exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with any engineered primary TCR alpha/beta T cells and non-exclusively in the field of treatment, prevention or diagnosis of any human cancer using products with certain other engineered immune cells worldwide. A joint steering committee was established by both parties to assign alliance managers and project leaders to oversee the collaboration activities.

Pursuant to the Affini-T Agreement, the Company granted Affini-T options to receive, on a pre-specified target-by-pre-specified target basis, for up to six pre-specified targets, either (i) an exclusive, royalty-bearing, sublicensable worldwide license under all of the Company's applicable intellectual property to research, develop, manufacture, use, commercialize and otherwise exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that is directed to such pre-specified target, contains or comprises Primary TCR alpha/beta T Cells and is derived from ex vivo application of a Company reagent (the "Exclusive Option") or (ii) a non-exclusive, royalty-bearing, sublicensable worldwide license under all of the Company's applicable intellectual property to research, develop, manufacture, use commercialize and otherwise exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that is directed to such pre-specified target, contains or comprises TCR natural killer ("NK") cells derived from iPSC immune cells or TCR T cells derived from donor-derived or iPSC immune cells. Affini-T can exercise its options for either an exclusive license or a non-exclusive license, or both, for each pre-specified target by providing written notice prior to the earlier of (x) the end of the Affini-T Agreement term or (y) 90 days following the filing of an IND for a licensed product directed to a pre-specified target, subject to the payment of certain fees per each option exercised. After the option exercise, Affini-T has agreed to use commercially reasonable efforts to conduct all development and commercialization activities for a licensed product, and development and commercialization of all licensed products will be at Affini-T's sole cost and expense.

In connection with the Affini-T Agreement, the Company received upfront equity consideration of 719,920 shares of Affini-T's common stock with an estimated fair value of $1.3 million in June 2022. The fair value of Affini-T's shares of common stock was estimated by management, considering the most recent third-party valuation. Affini-T has also agreed to reimburse the Company for expenses incurred while performing research activities under the research plans. As of June 30, 2023, the Company received a total of $1.9 million from Affini-T related to reimbursable expenses and recognized $2.3 million in accounts receivable. Additionally, the Company is eligible to receive (i) 933,650 shares of Affini-T's common stock upon the achievement of a

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regulatory milestone, which is the earlier of a submission of a drug master file to the FDA or an acceptance of an IND filing for a licensed product by the FDA, (ii) up to $18.8 million in future developmental milestone payments depending on the completion of or the number of patients dosed in, the relevant human clinical trial, or the initiation of a pivotal trial, and $40.6 million in future regulatory approval milestone payments, which include regulatory approvals in the U.S. and other markets for licensed products directed to a pre-specified target if options for both exclusive and non-exclusive licenses are exercised with respect to such target, (iii) up to $250.0 million in sales-based milestones for aggregate sales of all licensed products directed to a given pre-specified target and (iv) royalties ranging from a low-single digit to high-single digit percentage of worldwide annual net sales of licensed products.

The initial term of the Affini-T Agreement is five years from the effective date. If Affini-T exercises an Exclusive Option with respect to any pre-specified target during the initial term, the initial term will be extended by an additional five years. Following the expiration of the extended term, if any, the agreement will continue on a target-by-target basis and expire with respect to such target upon the expiration of the royalty term for all licensed products directed to such target. The Affini-T Agreement may be terminated during the term by either party for an uncured material breach by, or bankruptcy of, the other party. Additionally, Affini-T may terminate the Affini-T Agreement for convenience, in its entirety, on a research plan-by-research plan basis, on a target-by-target basis or on a licensed product-by-licensed product basis, by providing prior written notice.

Accounting analysis and revenue recognition

The Company concluded that the Affini-T Agreement is in the scope of ASC 606 and that there is one performance obligation to perform research activities under the Affini-T Agreement. Exclusive and non-exclusive licenses are optional contingent purchases that do not include significant incremental discounts, and therefore do not provide a material right.

At the effective date, the transaction price consisted of the upfront equity consideration with an estimated fair value of $1.3 million and estimated research reimbursement costs. Research reimbursement costs represent variable consideration, and the Company's management estimates what portion to include in total consideration at the end of each reporting period. Other payments under the Affini-T Agreement, including additional equity consideration and development and regulatory milestones, also represent variable consideration, and are constrained to the extent that the inclusion of such variable consideration could result in a significant reversal of cumulative revenue in future periods. As of December 31, 2022 and June 30, 2023, additional equity consideration and future development and regulatory milestone payments were excluded from the estimated total transaction price as they were considered constrained. The transaction price is reevaluated in each reporting period and as changes in circumstances occur. The Company recognizes revenue each reporting period based on the measure of progress using an estimated cost-based input method.

The Company recognized zero and $2.6 million in collaboration revenue in the condensed consolidated statements of operations and comprehensive loss during the six months ended June 30, 2022 and 2023, respectively. As of December 31, 2022, the Company recorded $1.3 million in contract assets on the condensed consolidated balance sheet, related to services performed but not invoiced. There was no contract asset related to services performed as of June 30, 2023. As of December 31, 2022 and June 30, 2023, deferred revenue related to the Affini-T Agreement was zero and $0.4 million, respectively. In June 2023, the joint steering committee approved the budget for estimated research reimbursement costs for the Affini-T Agreement, which resulted in a $2.4 million reduction to variable consideration. The value of the transaction price allocated to the remaining unsatisfied portion of the performance obligation was approximately $3.0 million as of June 30, 2023, which the Company expects to recognize as revenue over the next four-to-five years.

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Ionis collaboration and license agreement

Terms of the agreement

On November 10, 2022, the effective date, the Company entered into a Collaboration and License Agreement (the "Ionis Agreement") with Ionis Pharmaceuticals, Inc. ("Ionis") to collaborate on drug discovery and exploratory research activities to advance new medicines using gene editing strategies, with the goal of discovering novel medicines. Pursuant to the terms of the Ionis Agreement, the Company granted Ionis and its affiliates a worldwide exclusive, royalty-bearing license, with the right to grant sublicenses, to use all licensed systems and licensed products in the field of in vivo gene editing for all therapeutic, prophylactic, palliative, and analgesic uses in humans. In connection with the Ionis Agreement, the Company also has the right to exercise an exclusive option to co-develop and co-commercialize certain products under a drug discovery program. A joint steering committee was established by both parties to coordinate, oversee and monitor the research and drug discovery activities under the Ionis Agreement.

The parties will collaborate to discover therapeutic products under a drug discovery program and develop a drug discovery plan for each target, selected by Ionis. The target selection is divided into two waves: up to four targets in Wave 1 and up to four targets in Wave 2. For each drug discovery program, once the parties identify a development candidate that is suitable for further development, Ionis will be responsible for the development and commercialization of products resulting from such program. Per the terms of the Ionis Agreement, at any time prior to the designation of a development candidate for a drug discovery program and for any reason, Ionis may replace the collaboration target, provided such target has not previously been substituted out. Ionis may substitute (i) up to two Wave 1 targets and (ii) up to two Wave 2 targets.

The drug discovery activities for a program commence on the selection of a target and expire upon the earlier of (a) completion of all drug discovery activities for such program, (b) the fifth anniversary of the effective date and (c) selection of a development candidate for such drug discovery program. If one or more Wave 2 targets become collaboration targets as a result of the parties achieving enabled delivery and less than two years are remaining in the drug discovery term, then the term will be extended to the earlier of (i) the time that the Company completes all of its activities under the applicable drug discovery plan and (ii) the seventh anniversary of the effective date, subject to the Company's consent.

The parties will also conduct an exploratory research program, and will jointly optimize gRNA and select delivery technologies and other activities. The exploratory research activities commence on the effective date and expire upon the earlier of (a) completion of all exploratory research activities established in the exploratory research plan, and (b) the fifth anniversary of the effective date.

The Company has the exclusive option to co-develop and co-commercialize the licensed products under a drug discovery program (the "Co-Co Option") with Ionis. The Co-Co Option may be exercised for (a) the initial Wave 1 target ("Target 1"), (b) no more than one of the other three discovery programs for the Wave 1 targets, and (c) no more than two drug discovery programs for the Wave 2 targets that become collaboration targets. If the Company exercises the Co-Co Option for a particular drug discovery program, that drug discovery program will automatically be deemed a "Co-Co Program", all corresponding licensed products be deemed "Co-Co Products," the Company will be obligated to pay Ionis an option exercise fee, and the parties will enter into a separate co-development and co-commercialization agreement. The Co-Co Option exercise fee will equal 50% of Ionis' internal costs and out-of-pocket costs incurred in the conduct of the drug discovery activities prior to the exercise of the Co-Co Option and be reduced by 50% of the Company's corresponding costs incurred. Future development and commercialization costs will be shared equally. The Company may elect to reduce its cost-share percentage anywhere between 50% and 25% on a go-forward basis, provided the Company will continue

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to bear 50% of the costs of any clinical trials ongoing at the time of the election through the completion of the clinical trials.

The Company will manufacture all licensed systems and certain components of the applicable licensed products that are needed by Ionis for use in its development activities and all of the Company's manufactured components needed by Ionis for use in its commercialization activities. The Company will provide the manufactured components at a price that represents the cost of goods plus 15%.

Pursuant to the terms of the Ionis Agreement, the Company has also been granted an option to obtain a non-exclusive, royalty-bearing license, with the right to grant sublicenses, for certain Ionis' background technology to use in up to eight therapeutic products discovered by the Company in the field of in vivo gene editing and directed to a Collaboration Target (each such product, a "Metagenomi Product" and each such option an "Ionis IP Option"), but subject to encumbrance checks with respect to particular targets. A Collaboration Target is a target that is selected by Ionis, and, with respect to the Company is not the subject of discussions with a third party, is not the subject of a contractual grant of rights to a third party nor the subject to an internal research and development program. If the Company exercises its Ionis IP Option, the Company will pay to Ionis up to several million dollars per Metagenomi Product upon achievement of certain clinical and regulatory milestones. The Company is also obligated to pay Ionis royalties in an amount equal to a low single-digit royalty on the net sales of the applicable Metagenomi Product on product-by-product and country-by-country basis.

In November 2022, the Company received an $80.0 million upfront payment from Ionis for the Wave 1 drug discovery research collaboration and selected Target 1. Ionis selected its second target ("Target 2") in Wave 1 in December 2022, and the Company expects Ionis will select two final additional Wave 1 targets ("Target 3" and "Target 4") within the 12 months from the effective date, as permitted under the arrangement. Ionis has an option to select up to four Wave 2 targets at any time during the drug discovery term, if (a) an IND for any licensed product directed to a Wave 1 target is filed with the applicable regulatory authority or (b) the parties achieve enabled delivery for a non-liver target under the exploratory research activities, by providing written notice and by paying a Wave 2 target selection fee of $15.0 million or $30.0 million, depending on and per the selected target.

Ionis is obligated to reimburse the Company for all internal costs and out-of-pocket costs incurred in the performance of the exploratory research activities, up to an aggregate of $10.0 million, which is payable in quarterly installments of $0.5 million during the exploratory research term. As of June 30, 2023, the Company received a total of $1.0 million related to the reimbursable expenses. The Company is also eligible to receive (a) up to $29.0 million in future development milestone payments for each licensed product; (b) up to $60.0 million in future regulatory milestone payments for each licensed product; (c) up to $250.0 million in sales-based milestones for each licensed product; and (d) royalties on annual net sales of licensed products from a mid-single-digit to low-teens percentage, subject to customary reductions.

The term of the Ionis Agreement will continue (i) with respect to the drug discovery programs, until the expiration of all applicable royalty terms for a licensed product, (ii) with respect to the Co-Co Programs, until the parties cease all exploitation for the Co-Co Products that are the subject to such Co-Co Program, and (iii) with respect to the Metagenomi Products, until the expiration of the royalty term for a Metagenomi Product. The royalty term ends on the latest of the following two dates: (i) the expiration of (A) the last claim of any issued and unexpired patent, or (B) a claim within a patent application that has not been pending for more than seven years from the earliest date to which the claim or applicable patent application is entitled to claim priority and which claim has not been revoked, cancelled, withdrawn, held invalid, or abandoned, or (ii) 12 years following the first commercial sale of a licensed product.

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The Ionis Agreement may be terminated during the term by either party for an uncured material breach or bankruptcy by the other party. Additionally, Ionis may terminate the Ionis Agreement for convenience and without penalty, in its entirety or on a licensed product-by-licensed product basis, by providing 90 days' written notice.

Accounting analysis and revenue recognition

The Company concluded that the Ionis Agreement is in scope of ASC 606 at the effective date and until the Company exercises its Co-Co Option for any drug discovery program, which was determined to not be probable at the effective date and as of December 31, 2022 and June 30, 2023. The Company also concluded that exclusive licenses and participation in a joint steering committee are not distinct from discovery research services and should thus be combined into one performance obligation (the "discovery program"). The Company also concluded that exploratory research services are a separate and distinct performance obligation (the "exploratory program"). As the Ionis options for Wave 2 targets are optional purchases and do not have significant incremental discounts, as such, the options do not provide material rights.

The Company allocated the total estimated transaction price of $90.0 million, which consisted of an $80.0 million upfront payment received in November 2022 and a $10.0 million reimbursement for research costs, into two performance obligations, and was determined based on their estimated standalone selling prices. The Company concluded that future development and commercial supply agreements are at market terms, as the terms were consistent with industry standards as of the effective date. The Company constrains future milestone payments under the arrangement to the extent that the inclusion of such variable consideration could result in a significant reversal of cumulative revenue in future periods. The Company constrained all development and regulatory milestone payments at the effective date and as of December 31, 2022 and June 30, 2023. The Company is recognizing revenue of $80.0 million related to the discovery program and of $10.0 million related to exploratory program over the research terms using an estimated cost-based input method as a measure of progress for each obligation.

The Company recognized $8.5 million in collaboration revenue in the condensed consolidated statements of operations and comprehensive loss during the six months ended June 30, 2023, which was included in deferred revenue as of December 31, 2022. As of December 31, 2022 and June 30, 2023, deferred revenue related to the Ionis Agreement was $79.9 million and $72.5 million, respectively. The value of the transaction price allocated to the remaining performance obligations was approximately $81.4 million as of June 30, 2023, which the Company expects to recognize as revenue over the next four-to-five years.

8. Commitments and contingencies

Operating leases

In January 2021, the Company entered into a ten-year operating lease for laboratory and office space in Emeryville, California. The lease commencement date was in February 2021. In conjunction with signing this lease, the Company secured a letter of credit for $3.3 million, which is recorded as noncurrent restricted cash in the condensed consolidated balance sheets. As of December 31, 2022 and June 30, 2023, the balance of this letter of credit was $3.3 million and $2.5 million, respectively. The lease agreement includes a renewal provision allowing the Company to extend this lease for an additional five years, which the Company is not reasonably certain to exercise. In addition to base rent, the Company pays variable costs related to its share of operating expenses and taxes, which are recognized as incurred.

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In September 2021, the Company entered into a 9.25-year operating lease for office space in Emeryville, California, with a lease commencement date in November 2021. In conjunction with signing the lease, the Company secured a letter of credit for $0.8 million, which is recorded as noncurrent restricted cash in the condensed consolidated balance sheets as of December 31, 2022 and June 30, 2023. In addition to base rent, the Company pays variable costs related to its share of operating expenses and taxes, which are recognized as incurred.

In November 2022, the Company entered into an 8.25-year sublease for office, research and laboratory space in Emeryville, California, with a lease commencement date in January 2023. In conjunction with signing the lease, the Company secured a letter of credit for $2.0 million, which is recorded as noncurrent restricted cash in the condensed consolidated balance sheet as of December 31, 2022 and June 30, 2023. Monthly base rent under the lease is approximately $0.5 million and is subject to annual escalation. During the initial 18 months from the lease commencement date, 50% of the monthly base rent is abated. In addition to base rent, the Company pays variable costs related to its share of operating expenses and taxes, which are recognized as incurred.

Operating lease costs for the six months ended June 30, 2022 and 2023 totaled $1.7 million and $6.1 million, respectively, including $0.1 million and $1.4 million of variable lease cost, respectively.

Supplemental information related to the Company's operating leases is as follows (in thousands):

	Six months ended June 30,	
	2022	2023
Cash paid for amounts included in the measurement of lease liabilities	$ 1,109	$ 3,406
Weighted average remaining lease term (in years)	8.6	7.6
Weighted-average discount rate	10.1%	10.4%

The following table summarizes a maturity analysis of the Company's operating lease liabilities showing the aggregate lease payments as of June 30, 2023 (in thousands):

2023 (remaining)	$ 3,217
2024	8,345
2025	9,361
2026	9,673
2027	9,995
Thereafter	33,282
Total future lease payments	73,873
Less imputed interest	(25,411)
Total lease liability balance	48,462
Less: current operating lease liabilities	(1,843)
Non-current operating lease liabilities	$ 46,619

Legal contingencies

From time to time, the Company may become involved in legal proceedings arising from the ordinary course of business. The Company records a liability for such matters when it is probable that future losses will be

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incurred and that such losses can be reasonably estimated. Significant judgment by the Company is required to determine both probability and the estimated amount. Management is currently not aware of any legal matters that could have a material adverse effect on the Company's financial position, results of operations or cash flows.

Guarantees and indemnifications

In the normal course of business, the Company enters into agreements that contain a variety of representations and provide for general indemnification. Its exposure under these agreements is unknown because it involves claims that may be made against the Company in the future. To the extent permitted under Delaware law, the Company has agreed to indemnify its directors and officers for certain events or occurrences while the director or officer is, or was serving, at a request in such capacity. To date, the Company has not paid any claims or been required to defend any action related to its indemnification obligations. As of December 31, 2022 and June 30, 2023, the Company did not have any material indemnification claims that were probable or reasonably possible and consequently has not recorded related liabilities.

9. Redeemable convertible preferred units

On January 21, 2022, the Company closed the Series B financing and issued 12,446,876 shares of the Series B redeemable convertible preferred units for gross cash proceeds of $145.0 million. The Company incurred $0.7 million in issuance costs. Concurrently with the closing of the Series B financing, the outstanding Moderna convertible promissory note and accrued interest of $30.4 million was converted into 2,607,387 Series B Preferred Units, at a conversion price equal to the price per unit paid by the Series B investors.

On December 20, 2022, the Company entered into Series B-1 redeemable convertible preferred unit purchase agreement to sell up to 7,108,480 Series B redeemable convertible preferred units at the purchase price of $14.06770. In December 2022, the Company sold and issued 6,773,726 shares of the Series B-1 redeemable convertible preferred units for gross cash proceeds of $95.3 million in the initial closing. The Company incurred $0.4 million issuance costs. Additional shares may be sold within 90 days of the initial closing.

In January 2023, the Company sold an additional 334,754 Series B-1 redeemable convertible preferred units in accordance with the Series B-1 purchase agreement and received gross cash proceeds of $4.7 million. The Company incurred $0.1 million in issuance costs.

As of December 31, 2022 and June 30, 2023, the Company operated under the Amended and Restated Limited Liability Company Agreement dated December 20, 2022 (the "LLC Agreement"). The LLC Agreement provides for eight classes of units: common units, Series A-1 redeemable convertible preferred units (Series A-1), Series A-2 redeemable convertible preferred units (Series A-2), Series A-3 redeemable convertible preferred units (Series A-3), Series A-4 redeemable convertible preferred units (Series A-4), Series A-5 redeemable convertible preferred units (Series A-5), Series B redeemable convertible preferred units (Series B) and Series B-1 redeemable convertible preferred units (Series B-1).

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The redeemable convertible preferred units as of December 31, 2022, consisted of the following (in thousands, except unit data):

	Units authorized	Units Issued and outstanding	Aggregate liquidation preference	Net carrying value
Series A-1	7,501,002	7,501,002	$ 24,247	$ 24,067
Series A-2	774,473	774,473	500	581
Series A-3	1,513,860	1,513,860	1,773	1,892
Series A-4	8,280,360	8,280,360	40,149	40,007
Series A-5	1,580,937	1,580,937	10,000	9,948
Series B	15,054,263	15,054,263	175,375	174,678
Series B-1	7,108,480	6,773,726	95,291	94,930
	41,813,375	41,478,621	$ 347,335	$ 346,103

The redeemable convertible preferred units as of June 30, 2023, consisted of the following (in thousands, except unit data):

	Units authorized	Units issued and outstanding	Aggregate liquidation preference	Net carrying value
Series A-1	7,501,002	7,501,002	$ 24,247	$ 24,067
Series A-2	774,473	774,473	500	581
Series A-3	1,513,860	1,513,860	1,773	1,892
Series A-4	8,280,360	8,280,360	40,149	40,007
Series A-5	1,580,937	1,580,937	10,000	9,948
Series B	15,054,263	15,054,263	175,375	174,678
Series B-1	7,108,480	7,108,480	100,000	99,585
	41,813,375	41,813,375	$ 352,044	$ 350,758

The holders of the redeemable convertible preferred units have various rights and preference as follows:

Voting rights

Each redeemable convertible preferred unit is entitled to one vote for each common unit into which such redeemable convertible preferred unit is then convertible. The redeemable convertible preferred unitholders and the common unitholders vote together on all matters as a single class, except as otherwise provided by law or the provisions of the LLC Agreement.

The Board of Managers consists of up to seven individuals. As long as at least 618,716 Series A-1 redeemable convertible preferred units, Series A-2 redeemable convertible preferred units and/or Series A-3 redeemable convertible preferred units remain outstanding, the members holding a majority of the outstanding Series A-1 redeemable convertible preferred units, Series A-2 redeemable convertible preferred units and Series A-3 redeemable convertible preferred units, voting together as a single class on an as-converted basis, are entitled to elect one manager. As long as at least 1,654,555 Series A-4 redeemable convertible preferred units remain outstanding, the members holding a majority of the Series A-4 redeemable convertible preferred units, voting as a single class, are entitled to elect one manager. As long as at least 316,187 Series A-5 redeemable

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convertible preferred units remain outstanding, the members holding a majority of the Series A-5 redeemable convertible preferred units, voting as a single class, are entitled to elect one manager. As long as at least 3,010,852 Series B redeemable convertible preferred units remain outstanding, the members holding a majority of the Series B redeemable convertible preferred units, voting as a single class, are entitled to elect one manager. The members holding a majority of the common units, voting as a single class are entitled to elect one manager. The members holding a majority of the units then outstanding, voting together as a single class on an as-converted to common units basis are entitled to elect any remaining managers. As of each December 31, 2022 and June 30, 2023 the Company's Board of Managers consisted of six individuals.

Conversion

Each redeemable convertible preferred unit is convertible into common units at the option of a holder at the then applicable conversion price, which is equal the original purchase price, subject to adjustments for recapitalization and others. The original purchase price is equal to $3.2325 per Series A-1 Preferred Unit, $0.6456 per Series A-2 Preferred Unit, $1.1713 per Series A-3 Preferred Unit, $4.84875 per Series A-4 Preferred Unit, $6.32536 per Series A-5 Preferred Unit, $11.64951 per Series B Preferred Unit, and $14.06770 per Series B-1 Preferred Unit. As of December 31, 2022 and June 30, 2023, the redeemable convertible preferred units were convertible into common units at a one-for-one conversion ratio.

Each redeemable convertible preferred unit is automatically convertible into common units (or shares of common stock, if the Company is converted into a corporation), based on the then-effective applicable conversion rate (A) at any time upon the affirmative vote or written consent of (i) the members holding a majority of the redeemable convertible preferred units then outstanding, (ii) the members holding a majority of the Series B redeemable convertible preferred units then outstanding, and (iii) the members holding a majority of the Series B-1 redeemable convertible preferred units then outstanding, or (B) immediately upon the closing of a firmly underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, covering the offer and sale of common units (or other common securities) with the gross cash proceeds to the Company, before underwriting discounts, commissions and offering expenses, are at least $100.0 million, or (C) the closing of a merger, acquisition or other business combination involving the Company and a publicly traded special purpose acquisition company ("SPAC") or its subsidiary or affiliate in which the surviving public company has available immediately cash of at least $100.0 million in the aggregate greater than the cash on the Company's condensed consolidated balance sheets as of immediately prior to such merger, acquisition or other business combination (including proceeds of a private investment in public equity transaction that is substantially contemporaneous with or conditioned on such merger, acquisition or other business combination, and any redemptions from the SPAC's trust account).

Anti-dilution and other protective provisions

The holders of the redeemable convertible preferred units have proportional anti-dilution protection right for unit splits, unit dividends and similar recapitalizations, subject to certain exclusions, anti-dilution price protection for additional sales of securities by the Company for consideration per unit less than the applicable conversion price per unit of any series of the redeemable convertible preferred units, on a broad-based weighted average basis.

The holders of the redeemable convertible preferred units have certain protective rights. The Company shall not, either directly or by amendment, merger, consolidation or otherwise, without the prior written approval of members holding a majority of the redeemable convertible preferred units then outstanding to alter or change

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the rights, preferences or privileges of the redeemable convertible preferred units; consummate a liquidation or a deemed liquidation event; change the Company's LLC Agreement; authorize or create any new class or series of units or other equity security; increase or decrease the authorized number of the common units or the redeemable convertible preferred units or any series; redeem, acquire or repurchase any, or make any distribution on, any common units or redeemable convertible preferred units; change the compensation or equity awards granted to executive officers of the Company, unless such transaction is approved by the Board of Managers; increase or decrease the authorized number of managers constituting the Board of Managers and amend other rights or enter into certain transactions.

Liquidation preference

In the event of a liquidation, a deemed liquidation event (including a consolidation, merger or reorganization or a sale, lease, transfer, exclusive irrevocable license or other disposition of all or substantially all of the assets of the Company), dissolution or winding-up of the Company, the funds are distributed first to the members holding the redeemable convertible preferred units in proportion to and to the extent of their unreturned original purchase price per redeemable convertible preferred unit, until each member holding the redeemable convertible preferred units has received cumulative distributions in an amount equal to the unreturned original purchase price for each of such member's redeemable convertible preferred unit. Second, to the members holding common units and the redeemable convertible preferred units pro rata based on the number of units held by each such holder, assuming for this purpose that all the redeemable convertible preferred units have been converted into common units as of the date of such operating distribution or distribution of net proceeds or assets available for distribution, whether in cash or in other property. Third, the amounts that would otherwise be distributed to any redeemable convertible preferred unit holder pursuant to the liquidation preference on as-converted to common units basis will be reduced by an amount equal to the remaining preferred participation threshold amount for such redeemable convertible preferred unit. The preferred participation threshold amount for a redeemable convertible preferred unit is equal to the original purchase price, reduced by distributions paid.

Distributions preference

Distributions, when determined by the Board of Managers, are payable to the members holding the redeemable convertible preferred units, pro rata in proportion to the liquidation preference amounts in respect of the redeemable convertible preferred units held by such members; thereafter, to the members in proportion to the number of shares held by such members, on as converted basis. No distributions were declared or made from inception and during the six months ended June 30, 2022 and 2023.

Redemption

The redeemable convertible preferred units are not redeemable except in the event of certain effected deemed liquidation events, that are not in the Company's control.

10. Common units

As of December 31, 2022 and June 30, 2023, the Company was authorized to issue 66,000,000 common units. Each common unit is entitled to cast one vote. The holders of common units are also entitled to receive distributions whenever funds are legally available and when declared by the Company's Board of Managers, subject to prior rights of the holders of the redeemable convertible preferred units. No distributions have been declared from inception to date.

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As of December 31, 2022 and June 30, 2023, the Company reserved common units for future issuance as follows:

	December 31, 2022	June 30, 2023
Outstanding redeemable convertible preferred units	41,478,621	41,813,375
Outstanding profits interests	7,516,073	9,370,804
Units available for grants under 2019 Equity Incentive Plan	7,088,092	5,233,361
Total common units reserved for future issuance	56,082,786	56,417,540

Founders and investors common units

In June 2017, Metagenomi Inc. issued 4,687,500 shares of its common stock at a purchase price of $0.0001 per share to its founders and investors for services, which was an estimated fair value determined by the Board of Managers at the issuance date. Pursuant to the terms of the stock purchase agreements, 25% of the shares vested on the first anniversary of the vesting start date and monthly over the next 36 months. Vesting of shares is accelerated upon a change of control event (including an acquisition of the Company by another entity by means of any transaction or series of related transactions, or a sale of all or substantially all of the assets of the Company). The Company has a right to repurchase unvested shares upon termination of services provided by the founders to the Company at the price lower of i) the purchase price or ii) the fair value at the date of repurchase. In November 2018, in connection with the reorganization, common stock issued by Metagenomi Inc. was exchanged for common units of Metagenomi with the same terms. The estimated fair value of common unit at the modification date was determined to be $0.02 per unit, based on the Company's recent common unit valuation, and the modification expense was immaterial.

In March 2019, the Company issued 1,260,000 common units to an investor for services with a purchase price of $0.02 per unit, which was based on the recent Company's common stock valuation. As long as the investor continues to provide services, 25% of the shares vested immediately and the remainder vested monthly over the next 36 months. Vesting of shares is accelerated upon a change of control event. The Company has a right to repurchase unvested shares upon termination of services provided by the founders to the Company at the price lower of i) the purchase price or ii) the fair value at the date of repurchase.

The Company accounts for issued common units as unit-based compensation to founders and investors as service providers and recognizes unit-based compensation expense of $0.1 million over the vesting period. The Company had 78,750 common units vested during the six months ended June 30, 2022, having a fair value of less than $0.1 million. There were no common units unvested as of December 31, 2022 and June 30, 2023.

11. Profits interests plan

The Company grants profits interests under the 2019 Equity Incentive Plan, adopted on March 13, 2019 (the "2019 Plan"). The Company may grant profits interests with a threshold amount, which may be zero, established by the Board of Managers on the date of issuance. Accordingly, such profits interests do not give a holder a share of the proceeds if the Company's assets were sold at fair market value and the proceeds of such disposition were distributed in complete liquidation of the Company immediately after the date of grant but give a holder a right to share in the appreciation in the value of a common unit from the date of receipt to the future, as specifically provided in the LLC Agreement. The 2019 Plan allows for grants of profits interests to the

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Company's officers, employees, directors and consultants. Profits interests generally vest monthly over four years, with or without one-year cliff vesting in the first year. In the event of a profits interest holder's termination, the unvested portion of such profits interest is automatically forfeited and cancelled without any additional consideration. Additionally, the Company has the right to repurchase the vested portion of such profits interest at its fair market value, which is based on the fair market value of a common unit (as determined by the Board of Managers), less the applicable profits interest threshold amount, at any time during the 12-month period after termination of a profits interest holder's service to the Company.

The number of common units reserved for issuance under the 2019 Plan was 14,604,165 as of June 30, 2023.

The table below presents a summary of activities and a reconciliation of common units authorized and remaining for grant under the 2019 Plan during the six months ended June 30, 2023:

	Units available for grants	Profits interests	Weighted-average threshold amount	Aggregate intrinsic value (in thousands)
Outstanding as of January 1, 2023	7,088,092	7,516,073	$ 1.17	
Profits interests granted	(1,992,983)	1,992,983	$ 7.02	
Forfeited and expired	138,252	(138,252)	$ 3.03	
Outstanding as of June 30, 2023	5,233,361	9,370,804	$ 2.39	$ 75,663
Vested and expected to vest	5,233,361	9,370,804	$ 2.39	$ 75,663

The aggregate intrinsic value is calculated as the positive difference between the threshold amount of the profits interests and the fair value of the Company's common unit as of June 30, 2023.

During the six months ended June 30, 2022 and 2023, the Company granted 2,166,221 and 1,992,983 profits interests with a weighted average grant date fair value of $1.89 and $6.32, respectively. The total fair value of the profits interests vested during the six months ended June 30, 2022 and 2023 was $0.2 million and $1.7 million, respectively.

Unit-based compensation expense

The Company estimated the fair value of profits interests on the grant date using the Black-Scholes option-pricing model based on the following assumptions for the six months ended June 30, 2022 and 2023:

	Six months ended June 30,	
	2022	2023
Expected volatility	79.57% —82.26%	78.57% — 86.33%
Expected dividend yield	0%	0%
Expected term (in years)	3.52 — 4.00	2.00 — 4.12
Risk-free interest rate	2.65% — 2.82%	3.50% — 4.47%
Threshold range	3.2	5.75 — 7.40

Expected volatility—The Company is a private company and lacks company-specific historical and implied volatility information. Therefore, the Company estimates its expected unit's volatility based on the historical volatility of a publicly traded set of peer companies and expect to continue to do so until the Company has adequate historical data regarding the volatility of the Company's traded unit or stock price.

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Expected term—The expected term of profits interests has been determined based on the expected time to liquidity and expected vesting term.

Risk-free interest rate—The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award.

Dividends—Expected dividend yield is zero because the Company does not pay cash dividends on common units and does not expect to pay any cash dividends in the foreseeable future.

The grant date fair value of common units utilized in the Black-Scholes model is determined by the Company's Board of Managers with the assistance of management. The grant date fair value of common units is determined using valuation methodologies which utilizes certain assumptions including probability weighting of expected exit events, volatility, time to liquidation, a risk-free interest rate and an assumption for a discount for lack of marketability. In determining the fair value of the common units, the methodologies used to estimate the enterprise value were performed using methodologies, approaches, and assumptions consistent with the American Institute of Certified Public Accountants Accounting and Valuation Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation.

The following table presents the classification of unit -based compensation expense for the six months ended June 30, 2022 and 2023 (in thousands):

	Six months ended June 30,	
	2022	2023
Research and development expenses	$ 263	$ 614
General and administrative expenses	633	571
Total unit-based compensation expense	$ 896	$ 1,185

The above unit-based compensation expense related to the following unit-based awards for the six months ended June 30, 2022 and 2023 (in thousands):

	Six months ended June 30,	
	2022	2023
Profits Interests	$ 894	$ 1,185
Common Units	2	—
Total unit-based compensation expense	$ 896	$ 1,185

There was $6.5 million and $16.8 million in unrecognized unit-based compensation expense related to the profits interests as of June 30, 2022 and 2023, respectively, that is expected to be recognized over a weighted-average period of 3.4 and 3.3 years, respectively. There was no unrecognized unit-based compensation expense related to the common units as of December 31, 2022 and June 30, 2023, as all common units were fully vested.

12. Related party transactions

In connection with Series B financing, the Company reimbursed certain investors for finance issuance costs that they incurred totaling $0.3 million during the six months ended June 30, 2022.

Notes to the Unaudited Condensed Consolidated Financial Statements

In connection with Series B-1 financing, the Company reimbursed certain investors for finance issuance costs that they incurred totaling $0.1 million during the year ended December 31, 2022. As of December 31, 2022, $0.1 million of Series B-1 financing costs reimbursable to investors is recorded in accrued expenses and other current liabilities in the condensed consolidated balance sheets. The reimbursable Series B-1 financing costs were fully paid during the six months ended June 30, 2023.

13. Income taxes

Metagenomi is treated as a partnership for tax purposes, and thus, is not subject to income taxes. It is the responsibility of the LLC members to report their proportionate share of any taxable income or loss generated by Metagenomi to the appropriate taxing authorities and pay the associated taxes, if any. With respect to the Company's subsidiary, Metagenomi Inc. is a corporation for tax purposes and is subject to income taxes which have been included in the condensed consolidated financial statements. All pre-tax losses have been incurred in the United States.

The Company provides for income taxes in interim periods based on the estimated annual effective tax rate for the year, adjusting for discrete items in the quarter in which they arise. The income tax provision for the six months ended June 20, 2022 and 2023 was related to the timing differences of the recognition of upfront payments received under the Company's collaboration agreements for tax and financial reporting purposes and capitalization of its research and development expenses under the newly enacted Internal Revenue Code Section 174 ("Section 174"), which became effective on January 1, 2022. The effective tax rate differs from the U.S. statutory rate primarily due to the full valuation allowances on the Company's net deferred tax assets as it is more likely than not that all of the deferred tax assets will not be realized.

For the six months ended June 30, 2022 and 2023, the Company recorded a provision for income taxes of $1.1 million and $4.1 million by applying its estimated annual effective tax rate to its year-to-date measure of ordinary income, respectively. The increase in the provision for income taxes during the six months ended June 30, 2023 is primarily due to the higher forecasted research and development spend, which results in corresponding increases to Section 174 capitalization and taxable income for the year.

14. Net loss per unit

Basic and diluted net loss per unit attributable to common unitholders is calculated as follows (in thousands except share and per share amounts):

	Six months ended June 30,	
	2022	2023
Numerator:		
Net loss attributable to common members	$ (18,585)	$ (29,141)
Denominator:		
Weighted-average common units outstanding	5,947,500	5,947,500
Less: Weighted-average unvested common units subject to repurchase	(17,838)	—
Weighted-average units used to compute basic and diluted net loss per share	5,929,662	5,947,500
Net loss per unit attributable to common unitholders—basic and diluted:	$ (3.13)	$ (4.90)

Notes to the Unaudited Condensed Consolidated Financial Statements

The following outstanding potentially dilutive securities have been excluded from the calculation of diluted net loss per unit, as their effect is anti-dilutive:

	Six months ended June 30,	
	2022	2023
Redeemable convertible preferred units	34,704,895	41,813,375
Profits interests	7,406,510	9,370,804
Unvested common units	—	—
Total	42,111,405	51,184,179

15. Subsequent events

The Company has reviewed and evaluated subsequent events through September 7, 2023, the date that the condensed consolidated financial statements were available to be issued.

Profits Interests Grants

In September 2023, the Company granted 274,830 profits interests awards to officers, employees and consultants with a threshold amount of $11.84. In July and September 2023, the Company canceled and re-issued 781,312 profits interests awards with thresholds of $7.40 and $11.84. Issued profits interests vest over a period of two to four years.

Amendment to the LLC Agreement

The Company's LLC Agreement was amended on July 31, 2023 to provide for "catch-up" distributions for profits interests once the applicable catch-up threshold amount for such profits interests was met (the "Amendment to the LLC Agreement").

The LLC Agreement provides each profits interest with a distribution threshold amount, which is determined on the date of issuance and represents the amount that would be distributed if, immediately after issuance, the Company sold all of its assets at fair market value and distributed the net proceeds in liquidation. A profits interest does not participate in Company distributions until an amount equal to its distribution threshold amount has been distributed to other members of the Company with units that either have a lower threshold amount or no threshold amount.

Once the applicable distribution threshold amount has been met for a particular profits interest, such profits interest will participate in Company distributions on a pro rata basis until the catch-up threshold amount has been met. Once the catch-up threshold amount has been met, subsequent "catch-up" distributions will be made solely to holders of profits interests until such holders have received an amount equal to the amount such holders would have received had the distribution threshold not existed. Once the profits interest holders have received distributions in an amount equal to what they would have received had the distribution threshold not existed, all subsequent distributions are made on a pro rata basis with common unitholders.

The catch-up threshold amount of $11.84 per unit reflected the estimated fair value of the Company's common unit as of July 31, 2023, as determined by the Company's board of managers, with input from management, and considering the Company's most recently available third-party valuations of common units. The amendment to the LLC Agreement resulted in a change to the fair value of the profits interests and will be accounted for as a modification of the profits interests' awards.

Shares

Common Stock

Prospectus

J.P. Morgan **Jefferies** **TD Cowen** **Wells Fargo Securities** **BMO Capital Markets**

Chardan

, 2023

Through and including , 2023 (the 25th day after the date of this prospectus), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

Part II

Information Not Required in Prospectus

Item 13. Other Expenses of Issuance and Distribution

The following table sets forth the costs and expenses, other than underwriting discounts and commissions, to be paid by us in connection with the sale of the shares of common stock being registered hereby. All amounts shown are estimates except for the SEC registration fee, the FINRA filing fee and the Nasdaq Global Market initial listing fee.

SEC registration fee	$ *
FINRA filing fee	*
Nasdaq listing fee	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees and expenses	*
Miscellaneous	*

* To be provided by amendment.

Item 14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law (the "DGCL") authorizes a corporation to indemnify its directors and officers against liabilities arising out of actions, suits and proceedings to which they are made or threatened to be made a party by reason of the fact that they have served or are currently serving as a director or officer to a corporation. The indemnity may cover expenses (including attorneys' fees) judgments, fines and amounts paid in settlement actually and reasonably incurred by the director or officer in connection with any such action, suit or proceeding. Section 145 permits corporations to pay expenses (including attorneys' fees) incurred by directors and officers in advance of the final disposition of such action, suit or proceeding. In addition, Section 145 provides that a corporation has the power to purchase and maintain insurance on behalf of its directors and officers against any liability asserted against them and incurred by them in their capacity as a director or officer, or arising out of their status as such, whether or not the corporation would have the power to indemnify the director or officer against such liability under Section 145.

We have adopted provisions in our amended and restated certificate of incorporation and amended and restated bylaws to be in effect upon the effectiveness of this registration statement that limit or eliminate the personal liability of our directors to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended. Consequently, a director will not be personally liable to us or our stockholders for monetary damages or breach of fiduciary duty as a director, except for liability for:

- any breach of the director's duty of loyalty to us or our stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- any unlawful payments related to dividends or unlawful stock purchases, redemptions or other distributions; or
- any transaction from which the director derived an improper personal benefit.

These limitations of liability do not alter director liability under the federal securities laws and do not affect the availability of equitable remedies such as an injunction or rescission.

In addition, our amended and restated bylaws to be in effect upon the effectiveness of this registration statement provide that:

- we will indemnify our directors, officers and, in the discretion of our board of directors, certain employees to the fullest extent permitted by the DGCL, as it now exists or may in the future be amended; and
- we will advance reasonable expenses, including attorneys' fees, to our directors and, in the discretion of our board of directors, to our officers and certain employees, in connection with legal proceedings relating to their service for or on behalf of us, subject to limited exceptions.

We intend to enter into indemnification agreements with each of our directors and executive officers. These agreements provide that we will indemnify each of our directors, certain of our executive officers and, at times, their affiliates to the fullest extent permitted by Delaware law. We will advance expenses, including attorneys' fees (but excluding judgments, fines and settlement amounts), to each indemnified director or executive officer in connection with any proceeding in which indemnification is available and we will indemnify our directors and officers for any action or proceeding arising out of that person's services as a director or officer brought on behalf of us or in furtherance of our rights. Additionally, certain of our directors or officers may have certain rights to indemnification, advancement of expenses or insurance provided by their affiliates or other third parties, which indemnification relates to and might apply to the same proceedings arising out of such director's or officer's services as a director referenced herein. Nonetheless, we have agreed in the indemnification agreements that our obligations to those same directors or officers are primary and any obligation of such affiliates or other third parties to advance expenses or to provide indemnification for the expenses or liabilities incurred by those directors are secondary.

We also maintain general liability insurance which covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers, including liabilities under the Securities Act.

The underwriting agreement filed as Exhibit 1.1 to this registration statement provides for indemnification of us and our directors and officers by the underwriters against certain liabilities under the Securities Act and the Exchange Act.

Item 15. Recent Sales of Unregistered Securities

In the three years preceding the filing of this registration statement, we have issued the following securities that were not registered under the Securities Act:

(a) Preferred Units

From 2020 to 2021, we sold an aggregate of 9,861,297 Series A preferred units in multiple closings, consisting of (i) 8,280,360 Series A-4 preferred units sold at a purchase price of $4.84875 per unit for an aggregate amount of $40.1 million and (ii) 1,580,937 Series A-5 preferred units sold at a purchase price of $6.32536 per unit for an aggregate amount of $10.0 million, for total aggregate proceeds of $50.1 million.

In 2022 and 2023, we sold an aggregate of 22,162,743 Series B preferred units in multiple closings, consisting of (i) 15,054,263 Series B preferred units, which includes (a) 12,446,876 Series B preferred units sold at a purchase price of $11.64951 per unit and (b) 2,607,387 Series B preferred units which converted pursuant to a promissory note with a principal amount of $30.0 million and accrued interest of $0.4 million between the Company and ModernaTx, Inc., for an aggregate amount of $175.4 million and (ii) 7,108,480 Series B-1 preferred units sold at a purchase price of $14.06770 per unit for an aggregate amount of $100.0 million, for total aggregate proceeds of $275.4 million.

No underwriters were involved in the foregoing sales of securities. The sales of securities described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering. All of the purchasers in these transactions represented to us in connection with their purchase that they were acquiring the securities for investment and not distribution, that they could bear the risks of the investment and could hold the securities for an indefinite period of time. Such purchasers received written disclosures that the securities had not been registered under the Securities Act and that any resale must be made pursuant to a registration or an available exemption from such registration. All of the foregoing securities are deemed restricted securities for the purposes of the Securities Act.

(b) Profits Interests

Since January 1, 2020, we have granted an aggregate of 9,903,897 profits interests, with profits interests threshold amounts ranging from $0.08 to $11.84 per unit, to employees, directors and consultants pursuant to the 2019 Plan. No common units have been issued pursuant to the 2019 Plan.

The issuances of the securities under the 2019 Plan described above were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act or Rule 701 promulgated under the Securities Act as transactions pursuant to compensatory benefit plans. The profits interests are deemed to be restricted securities for purposes of the Securities Act.

The issuance of securities described above to employees and consultants outside of the 2019 Plan were deemed exempt from registration pursuant to Section 4(a)(2) of the Securities Act as transactions by an issuer not involving a public offering.

Item 16. Exhibits and Financial Statement Schedules

(a) Exhibits.

Exhibit number	Exhibit table
1.1*	Form of Underwriting Agreement
3.1*	Amended and Restated Limited Liability Company Agreement of the Registrant, as currently in effect
3.2*	Form of Amended and Restated Certificate of Incorporation of the Registrant (to be effective upon the closing of this offering)
3.3*	Form of Amended and Restated By-laws (to be effective upon the closing of this offering)
4.1*	Amended and Restated Investors' Rights Agreement among the Registrant and certain of its stockholders, dated December 20, 2022
4.2*	Form of Common Stock Certificate
5.1*	Opinion of Goodwin Procter LLP
10.1*	2019 Equity Incentive Plan, as amended, and forms of award agreements thereunder
10.2*	2023 Stock Option and Incentive Plan and forms of award agreements thereunder
10.3*	2023 Employee Stock Purchase Plan
10.4*	Form of Officer Indemnification Agreement
10.5*	Form of Director Indemnification Agreement
10.6†	Strategic Collaboration and License Agreement by and between the Registrant and ModernaTX, Inc., dated October 29, 2021
10.7†	Collaboration and License Agreement by and between the Registrant and Ionis Pharmaceuticals, Inc., dated November 10, 2022
10.8†	Development, Option and License Agreement by and between the Registrant and Affini-T Therapeutics, Inc., dated June 14, 2022
10.9*	Lease Agreement between EPL Halleck Investors LLC and Metagenomi, Inc., dated January 22, 2021
10.10*	Sublease Agreement between Zymergen Inc. and Metagenomi, Inc., dated November 11, 2022
10.11*	Lease Agreement between Park Avenue Building LLC and Metagenomi, Inc., dated September 29, 2021
10.12*	Employment Agreement between the Registrant and Brian C. Thomas, to be in effect upon the closing of this offering
10.13*	Employment Agreement between the Registrant and Jian Irish, to be in effect upon the closing of this offering
10.14*	Employment Agreement between the Registrant and Simon Harnest, to be in effect upon the closing of this offering
16.1**	Letter from KPMG LLP to the Securities and Exchange Commission dated August 3, 2023
21.1*	Subsidiaries of the Registrant
23.1*	Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm
23.2*	Consent of Goodwin Procter LLP (included in Exhibit 5.1)
24.1*	Power of Attorney (included on signature page to this registration statement)
107*	Filing Fees Exhibit

* To be filed by amendment.
** Previously filed.

† Portions of this exhibit (indicated by asterisks) will be omitted in accordance with the rules of the SEC because the Registrant has determined that information is not material and would be competitively harmful if publicly disclosed.

(b) Financial Statement Schedules.

None.

Item 17. Undertakings

The undersigned Registrant hereby undertakes to provide to the underwriters at the closing specified in the Underwriting Agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

(i) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(ii) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

Signatures

Pursuant to the requirements of the Securities Act, Metagenomi Technologies, LLC has duly caused this registration statement on Form S-1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Emeryville, California, on the day of , 2023.

Metagenomi Technologies, LLC

By: _____
Brian C. Thomas, Ph.D.
Chief Executive Officer

Signatures and Power of Attorney

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Brian C. Thomas and Michael Conway, and each of them, either of whom may act without the joinder of the other, as his true and lawful attorneys-in-fact and agents with full power of substitution and re-substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement, and to sign any registration statement for the same offering covered by the registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with all exhibits thereto and all documents in connection therewith, with the SEC, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or his or her or their substitute or substitutes, may lawfully do or cause to be done or by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities indicated on the day of , 2023.

Signature	Title
Brian C. Thomas, Ph.D.	Chief Executive Officer (Principal Executive Officer)
Michael Conway, MBA, CPA	Vice President of Finance (Principal Financial Officer and Principal Accounting Officer)
Juergen Eckhardt, M.D., MBA	Director
Sebastián Bernales, Ph.D.	Director
Risa Stack, Ph.D.	Director
Willard Dere, M.D.	Director
Santhosh Palani, Ph.D.	Director

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL

CONFIDENTIAL

STRATEGIC COLLABORATION AND LICENSE AGREEMENT

Between

MODERNATX, INC.

and

METAGENOMI, INC.

October 29, 2021

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STRATEGIC COLLABORATION AND LICENSE AGREEMENT

This **STRATEGIC COLLABORATION AND LICENSE AGREEMENT** (this "**Agreement**") is entered into as of October 29, 2021 (the "**Effective Date**") by and between **METAGENOMI, INC.**, a company incorporated under the laws of Delaware having an address at 1545 Park Ave, Emeryville, CA 94608 ("**Metagenomi**"), and **MODERNATX, INC.**, a corporation organized and existing under the laws of Delaware, with its principal business office located at 200 Technology Square, Cambridge, MA 02139 ("**Moderna**"). Moderna and Metagenomi are each hereafter referred to individually as a "**Party**" and together as the "**Parties**."

WHEREAS, Metagenomi is a biotechnology company focused on using metagenomics and machine learning to discover novel genome editing systems;

WHEREAS, Moderna is a pharmaceutical company engaged in the research, development, manufacturing, marketing and distribution of mRNA-based therapeutic products;

WHEREAS, Moderna and Metagenomi desire to establish a collaboration to discover novel genome editing technologies for use as *in vivo* genome editing therapies;

WHEREAS, Metagenomi and Moderna desire to collaborate in the research and development of *in vivo* genome editing therapies directed at certain targets as well as the commercialization of such genome editing therapies all as set forth in the Program Plans (as defined below);

WHEREAS, Moderna will provide an equity investment in Metagenomi in the form of a convertible note pursuant to the Convertible Note Instruments dated October 29, 2021.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Parties hereby agree as follows:

Article 1
DEFINITIONS

Capitalized terms used in this Agreement and the Schedules hereto shall have the following meanings (or as defined elsewhere in this Agreement):

1.1 "**Affiliate**" means, with respect to a Person (including a Party), any entity that, at the relevant time (whether as of the Effective Date or thereafter), directly or indirectly through one or more intermediaries, controls, is controlled by, or is under common control with such Person, for so long as such control exists. As used in this Section 1.1, "control" means: (a) to possess, directly or indirectly, the power to direct or cause the direction of the management or policies of an entity, whether through ownership of voting securities or by contract relating to voting rights or corporate governance; or (b) direct or indirect ownership of more than fifty percent (50%) (or such lesser percentage that is the maximum allowed to be owned by a foreign entity in a particular jurisdiction) of the voting share capital or other equity interest in such entity.

1.2 “**Allowable Overruns**” means, for a particular DT Co-Co Candidate or DT Co-Co Product, as applicable, any amount that is less than [***] (or such other percentage as may be approved by the JSC) above the most recent budgeted costs and expenses for a Calendar Year on a year-to-date basis set forth in any applicable Research Budget, Development Budget, Medical Affairs Budget, or Commercialization Budget, as applicable, for such Calendar Year; provided that such amount is not attributable to (a) the breach of this Agreement or (b) the gross negligence or willful misconduct of either Party or any of its Affiliates.

1.3 “**Applicable Laws**” means the applicable provisions of any and all federal, national, supranational, regional, state and local laws, treaties, statutes, rules, regulations, guidelines or requirements, administrative codes, guidance, ordinances, judgments, decrees, directives, injunctions, orders, or permits of or from any court, arbitrator, Regulatory Authority, Governmental Authority, data protection authority, taxing authority, national securities exchange or exchange listing organization having jurisdiction over or related to the relevant subject item that may be in effect from time to time during the Term.

1.4 “**Approved Labeling**” means, with respect to a DT Co-Co Product: (a) the Regulatory Authority-approved full prescribing information for such DT Co-Co Product; and (b) the Regulatory Authority-approved labels and other written, printed, or graphic materials on any container, wrapper, or any package insert that is used with or for such DT Co-Co Product.

1.5 “**Background Technology**” means, with respect to a Party, on a Program-by- Program basis, any and all materials, Patents, Know-How and other intellectual property rights Controlled by such Party or any of its Affiliates as of the Effective Date or that comes into the Control of such Party or any of its Affiliates during the Term (other than Program Technology), in each case related to or otherwise pertaining to such Program, and in the case of Moderna, to the extent Moderna makes any of the foregoing available to Metagenomi pursuant to this Agreement. Background Technology shall not include any materials, Patents, Know-How or other intellectual property rights Controlled by a New Affiliate of a Party and not also Controlled by such Party or any of its Affiliates, provided that such New Affiliate is not utilizing the Metagenomi Licensed Collaboration Technology or the Moderna Licensed Collaboration Technology with respect to the activity that would otherwise be restricted under Sections 5.20 (RT Exclusivity), 5.21 (DT Exclusivity), or 5.22 (DT Co-Co Target Exclusivity), as applicable.

1.6 “**Base Editing**” means [***].

1.7 “**Base Editing Correction Readiness**” means the criteria for Base Editing correction as specified in part 2 of the Base Editing Readiness Milestones in **Schedule C** (Certain Technology Milestones).

1.8 “**Base Editing Knockout Readiness**” means the criteria for Base Editing knockout as specified in part 1 of the Base Editing Readiness Milestones in **Schedule C** (Certain Technology Milestones).

1.9 “**Base Editing Readiness Milestone**” means [***].

1.10 “**BEC**” means [***].

1.11 “**Biosimilar Application**” means an application submitted to the FDA under subsection (k) of Section 351 of the PHSA, or any analogous application submitted to a Regulatory Authority in the U.S. or in another country in the world.

1.12 “**Biosimilar Product**” means, with respect to a Product, and on a Product-by-Product and country-by-country basis, any product (including a “generic product,” “biogeneric,” “follow-on biologic,” “follow-on biological product,” “follow-on protein product,” “similar biological medicinal product,” or “biosimilar product”) approved by way of an abbreviated regulatory mechanism by the relevant Regulatory Authority in a country in reference to such Product, that in each case: (a) is sold in the same country (or is commercially available in the same country via import from another country) as such Product by any Third Party that is not a Sublicensee of the applicable Party or any of its Affiliates and that did not purchase such product in a chain of distribution that included any of the applicable Party or any of its Affiliates or its Sublicensees; and (b) meets the equivalency determination by the applicable Regulatory Authority in such country (including a determination that the product is “comparable,” “interchangeable,” “bioequivalent,” “biosimilar” or other term of similar meaning, with respect to the Product), in each case, as is necessary to permit substitution of such product for the Product under Applicable Law in such country, including, with respect to the U.S., to an Abbreviated New Drug Applications under Section 505(j) of the FD&C Act (21 USC 355(j)) or is approved as a “Biosimilar Biologic Product” under Title VII, Subtitle A Biologics Price Competition and Innovation Act of 2009, Section 42 U.S.C. 262, Section 351 of the PHSA, or, outside the U.S., in accordance with European Directive 2001/83/EC on the Community Code for medicinal products (Article 10(4) and Section 4, Part II of Annex I) and European Regulation EEC/2309/93 establishing the Community procedures for the authorization and evaluation of medicinal products, each as amended, and together with all associated guidance, and any counterparts thereof or equivalent process inside or outside of the U.S. or EU to the foregoing.

1.13 “**Business Day**” means any day other than Saturday, Sunday, or any day that banks are authorized or required to be closed in the state of New York or the Commonwealth of Massachusetts or the state of California.

1.14 “**Calendar Quarter**” means each respective period of three (3) consecutive months ending on March 31, June 30, September 30 and December 31 of any Calendar Year.

1.15 “**Calendar Year**” means each respective period of twelve (12) consecutive months commencing on January 1 and ending on December 31.

1.16 “**Candidate**” means a BEC Candidate, an RT Candidate, a DT Moderna Candidate or a DT Co-Co Candidate, as the case may be.

1.17 “**Change of Control**” means, with respect to either Party: (i) the acquisition by a Third Party, in one transaction or a series of related transactions, of direct or indirect beneficial ownership of more than fifty percent (50%) of the outstanding voting equity securities of such Party (excluding, for clarity, an acquisition by a Third Party where the stockholders of such acquired Party immediately prior to such transaction hold a majority of the voting shares of outstanding capital stock of the surviving entity immediately following such transaction); (ii) a merger or consolidation involving such Party, as a result of which a Third Party acquires direct or

indirect beneficial ownership of more than fifty percent (50%) of the voting power of the surviving entity immediately after such merger, reorganization or consolidation; or (iii) a sale of all or substantially all of the assets of such Party in one transaction or a series of related transactions to a Third Party. The acquiring or combining Third Party in any of (i), (ii) or (iii), and any of such Third Party's Affiliates (whether in existence as of or any time following the applicable transaction, but other than the acquired Party and its Affiliates as in existence prior to the applicable transaction or other Affiliates such Party or its Affiliates controls (directly or indirectly) after the applicable transaction) are referred to collectively herein as the "**Acquirer**."

Notwithstanding the foregoing, with respect to Metagenomi, the term "Change of Control" shall not include (i) any sale of shares of capital stock of Metagenomi or any of its Affiliates, in a single transaction or series of related transactions, in which Metagenomi or its applicable Affiliate issues new securities for cash or the cancellation or conversion of indebtedness or a combination thereof, or (ii) any merger or consolidation of Metagenomi or any of its Affiliates (including a special purpose acquisition company (SPAC)), in each case ((i) and (ii)) where such transaction(s) are conducted primarily for *bona fide* equity financing purposes or for becoming a publicly listed company.

1.18 "**Clinical Trial"** means a Phase I Clinical Trial, Phase II Clinical Trial, Phase III Clinical Trial, or any post-Regulatory Approval human clinical trial, as applicable.

1.19 "**CMC**" means Chemistry and Manufacturing Controls, which includes (a) Manufacturing process development records for products, (b) all chemistry, Manufacturing and control procedures necessary for Manufacture of products, and (c) sourcing and testing of all raw materials and components used in the Manufacture of products.

1.20 "**CMC Activities**" means [***].

1.21 "**CMC Matters**" means [***].

1.22 "**Co-Co In-License**" means Co-Co Moderna In-License Agreements or Co-Co Metagenomi In-License Agreements, as applicable.

1.23 "**Collaboration Materials**" means any tangible (non-document) materials Controlled by a Party or any of its Affiliates that are delivered to the other Party under this Agreement, including to conduct Research as set forth in an applicable Program Plan.

1.24 "**Collaboration Target**" means an RT Target, a DT Moderna Target or the DT Co-Co Target, as the case may be.

1.25 "**Commercial Overhead Charge**" means[***].

1.26 "**Commercialization**" means any and all activities directed to the offering for sale and sale of a Product, including: (a) activities directed to storing, marketing, promoting, detailing, distributing, importing, exporting, selling and offering to sell (including receiving, accepting, and filling orders); (b) handling all returns; (c) controlling invoicing, order processing, and collection of accounts receivable for the sales; (d) booking and recording sales in its books of account; (e) distributing and managing inventory; (f) interacting with Regulatory Authorities regarding any of the foregoing; and (g) seeking Pricing and Reimbursement Approvals (as applicable). When used as a verb, "to **Commercialize**" and "**Commercializing**" means to engage in Commercialization and "**Commercialized**" has a corresponding meaning.

1.27 "**Commercialization Budget**" means, the budget for activities under the applicable Commercialization Plan for each DT Co-Co Product.

1.28 "**Commercialization Costs**" means [***].

Notwithstanding any provision to the contrary set forth in this Agreement no Milestone Payment shall be considered a Commercialization Cost, and no expense included as a Commercialization Cost shall be included as an Eligible Development Cost, Eligible Medical Affairs Cost, Cost of Sales, or Other Operating Expense. Commercialization Costs specifically exclude any costs or expenses of a Party or its Affiliates to the extent caused by such Party or its Affiliate's breach of this Agreement.

1.29 "**Commercially Reasonable Efforts**" means [***].

1.30 "**Control**" or "**Controlled**" means, with respect to any materials, Know-How, Patents, or other intellectual property rights, that a Party or any of its Affiliates has the legal authority or right (whether by ownership, license, or otherwise) to grant to the other Party a license, covenant not to sue, sublicense, access, or right to use (as applicable) under such materials, Know-How, Patents, or other intellectual property rights, on the terms and conditions set forth herein, in each case without violating any obligations of the granting Party owed to a Third Party, breaching the terms of any agreement with a Third Party or subjecting the granting Party to any fee or charge in addition to the fees or charges the Parties have agreed to pay pursuant to this Agreement. Notwithstanding the foregoing, any New Affiliate of a Party shall not be considered an Affiliate of such Party for the purposes of this definition, provided that such New Affiliate is not utilizing the Metagenomi Licensed Collaboration Technology or the Moderna Licensed Collaboration Technology with respect to the activity that would otherwise be restricted under Sections 5.20 (RT Exclusivity), 5.21 (DT Exclusivity), or 5.22 (DT Co-Co Target Exclusivity), as applicable.

1.31 "**Cost of Sales**" means, with respect to a given Calendar Quarter, the aggregate Manufacturing Costs (calculated in accordance with U.S. GAAP) for all DT Co-Co Products sold in the Territory during such Calendar Quarter. Cost of Sales also includes royalties payable to Third Parties, if any, cost of shipping to customers, and applicable warehousing and insurance costs.

1.32 "**Cover**" means, with respect to a claim of a Patent and a given Collaboration Target or Product or a given item of Know-How, that such claim would be infringed, absent a license, by the making, use, importation, exportation, offering for sale, sale, or other Exploitation of such Collaboration Target or Product or such item of Know-How (considering claims of patent applications to be issued as then pending).

1.33 "**Data Package**" means, on a Collaboration Target-by-Collaboration Target basis, the package of data (e.g., results, data (including raw data and summaries thereof), conclusions and findings) to be generated pursuant to the Program Plan for such Collaboration Target, including for purposes of demonstrating achievement of indicated success criteria. For clarity, the specific contents of each Data Package shall be determined by the JSC and set forth in the applicable Program Plan and ownership of the contents shall be determined in accordance with Section 8.1.2 (Ownership of Intellectual Property).

1.34 "**DC Nomination**" means the nomination of a DT Co-Co Candidate by the JSC to advance to IND-enabling studies, including, without limitation, any GLP Toxicology Studies. A DT Co-Co Candidate that has been so nominated shall become a DT Co-Co Product.

1.35 "**Development**" means all internal and external research, development, and regulatory activities regarding pharmaceutical or biologic products, including (a) research, non- clinical testing, toxicology, route of synthesis, non-clinical activities, pre-clinical studies, and Clinical Trials (including any Phase IV Required Clinical Trial, but expressly excluding Phase IV Optional Clinical Trials), and (b) preparation, submission, review, and development of data or information for the purpose of submission to a Regulatory Authority to obtain authorization to conduct Clinical Trials and to obtain, support, or maintain Regulatory Approval of a Product, but excluding activities directed to Manufacturing or Commercialization. Development shall include development and regulatory activities for additional forms, formulations, or Indications for a Product after receipt of Regulatory Approval of such Product, including Clinical Trials initiated following receipt of Regulatory Approval or any Clinical Trial to be conducted after receipt of Regulatory Approval that was mandated by the applicable Regulatory Authority as a condition of such Regulatory Approval with respect to an approved formulation or Indication (such as post-marketing studies and observational studies, if required by any Regulatory Authority in any country in the Territory to support or maintain Regulatory Approval for a Product in such country). "**Develop**," "**Developing**," and "**Developed**" shall be construed accordingly.

1.36 "**Development Budget**" means, the budget for activities under the applicable Development Plan for each DT Co-Co Product.

1.37 "**Development Costs**" means [***].

1.38 "**Directed Against**" means [***].

1.39 "**Distribution Matters**" means all issues and decisions regarding the distribution of DT Co-Co Products, including decisions as to whether and with which wholesalers and distributors to contract, and the terms of contracts with such wholesalers and distributors.

1.40 "**Divestiture**" means the sale or transfer of rights to the Competing Program by Metagenomi (or its Affiliate) to a Third Party.

1.41 "**DMF**" means any drug master file filed with the FDA, and any equivalent filing in other countries or regulatory jurisdictions, or any other mechanism for achieving the purposes of a drug master file in any jurisdiction where there is no equivalent.

1.42 "**Dollar**" means a U.S. dollar, and "**$**" is to be interpreted accordingly.

1.43 "**Donor Template**" means [***].

1.44 **"DT Co-Co Candidate"** means [***].

1.45 **"DT Co-Co Product**" means a DT Co-Co Candidate nominated through DC Nomination for further Development in the DT Co-Co Program.

1.46 "**DT Co-Co Research Costs**" means [***].

1.47 "**DT Co-Co Target**" means the target identified in **Schedule A** (DT Co-Co Target).

1.48 "**DT Field**" means *in vivo* Gene Editing for a therapeutic, ameliorative or prophylactic application by way [***].

1.49 "**DT In-Licenses**" means DT Moderna In-License Agreements or DT Metagenomi In-License Agreements, as applicable.

1.50 "**DT Moderna Research Term**" means the period that commences on the Effective Date and continuing until four (4) years after the Effective Date, unless earlier terminated pursuant to this Agreement.

1.51 "**DT Option Fee"** means ten million Dollars ($10,000,000) for each DT Moderna Research Program with respect to which Moderna has exercised a DT Option.

1.52 "**DT Program Know-How**" means, with respect to a Party, on a DT Program-by- DT Program basis, all materials and Know-How that comes into the Control of such Party or any of its Affiliates during the Term for such DT Moderna Research Program that relates or otherwise pertains to such DT Program, including that (a) relates or otherwise pertains to the DT Moderna Target of such DT Program, (b) is otherwise necessary or useful in Researching, Developing, Manufacturing, Commercializing or otherwise Exploiting Licensed Products Directed Against such DT Moderna Target in the DT Field in the Territory or (c) [***] (a), (b) and (c) to the extent Moderna makes any of the foregoing available to Metagenomi pursuant to this Agreement. For clarity, "DT Program Know-How" includes all of such Party's rights in its solely-owned Program Technology constituting materials and Know-How that satisfy the foregoing, and any jointly-owned Know-How within the Program Technology that satisfies the foregoing.

1.53 "**DT Program Patents**" means all Patents that Cover any of the DT Program Know-How. For clarity, DT Program Patents include any Joint Patents that satisfy the foregoing.

1.54 "**DT Program Technology**" means the DT Program Know-How and the DT Program Patents.

1.55 "**DT Targets**" means the DT Moderna Targets and the DT Co-Co Target.

1.56 "**Eligible Co-Co Research Cost**" means [***].

1.57 "**Eligible Development Costs**" means [***].

1.58 "**Eligible Medical Affairs Costs**" means [***].

1.59 "**EMA**" means the European Medicines Agency or any successor agency thereto.

1.60 "**E.U.**" means the European Union.

1.61 "**Ex-U.S.**" means all countries in the Territory other than the U.S.

1.62 "**Executive Officers**" means [***].

1.63 "**Exploit**" means to make, use, offer to sell, sell, import, export, practice, research, develop, manufacture, commercialize or otherwise exploit (including Research, Develop, Manufacture, perform Medical Affairs activities and Commercialize Products), and have others do the same. "**Exploitation**" and "**Exploiting**" shall be construed accordingly.

1.64 "**External Costs**" mean [***].

1.65 "**FD&C Act**" means the United States Federal Food, Drug and Cosmetic Act, as amended.

1.66 "**FDA**" means the United States Food and Drug Administration or any successor agency thereto.

1.67 "**Field**" means all uses, including any and all uses for the diagnosis, prevention, amelioration, and treatment of any disease or medical condition.

1.68 "**Firewall Period**" means, with respect to a Competing Program of an Acquirer of a Party, the period commencing on the applicable Firewall Event and ending on the earlier of: (a) Divestiture of the Competing Program by such Acquirer; and (b) the expiration of such Party's exclusivity obligations under this Agreement (in respect of the relevant Competing Program).

1.69 "**Firewalls**" means effective walls and screens established between a Party, on the one hand, and on the other hand, an Acquirer of such Party which has a Competing Program, to ensure that no non-public information, materials (such as lab notebooks, document management systems or other documented or memorialized Know-How) or non-personnel resources directly relating to any RT Targets, DT Targets, Candidates, Products, or the Program, or any non-public information, materials or non-personnel resources relating to Patents provided, or made accessible, to such Party by the other Party are accessible by personnel of the Acquirer working on the Competing Program during the Firewall Period. For purposes of this definition, "Firewalls" shall include, during the Firewall Period, as necessary to satisfy this definition: (a) walls and screens (whether technical or physical) between (i) on the one hand, personnel of such Party performing Research or Development activities under, or otherwise working on or involved with, the Program or having access to any of the other Party's Licensed Collaboration Technology, non-public materials (such as lab notebooks, document management systems or other forms in which such Know-How may be memorialized) or non-personnel resources, in each case, directly relating to the Program (all of the foregoing, collectively, "**Collaboration Personnel**") and (ii) on the other hand, personnel of an Acquirer working on the Competing Program, or having access to any nonpublic materials (such as lab notebooks, document management systems or other forms in which such Know-How may be memorialized) or non-personnel resources, in each case, directly relating to the Competing Program (all of the foregoing, collectively, "**Competing Program Personnel**"); and (b) processes ensuring that (i) Collaboration Personnel do not perform any Research or Development activities under the Competing Program or have access to any non-public materials

(such as lab notebooks, document management systems or other forms in which such Know-How may be memorialized) or non-personnel resources, in each case, directly relating to the Competing Program and (ii) Competing Program Personnel do not perform Research or Development activities or any other work under the Program or have access to any of the other Party's Licensed Collaboration Technology, non-public materials (such as lab notebooks, document management systems or other forms in which such Know-How may be memorialized) or non-personnel resources, in each case, directly relating to the Program. Notwithstanding the foregoing, "**Firewalls**" shall not (i) require activities specific to the Program to be performed in a separate facility than activities that are specific to the Competing Program, provided that the activities specific to the Program are performed in a different location within such facility than the activities specific to the Competing Program, (ii) restrict Collaboration Personnel from working together with Competing Program Personnel on Exploitation of any compound or product that is neither the subject of the Program nor the subject of the Competing Program, or (iii) restrict executive officers or members of the board of directors of such Party or its Affiliates, including the Acquirer, from accessing or receiving disclosure of information solely as necessary to enable executive officers and the board of directors to comply with (x) their fiduciary obligations to such Party or its Affiliates or (y) Applicable Laws; provided that such executive officers or members of the board of directors are prohibited from using any information pertaining to the Program or any other activities covered under this Agreement to inform or make decisions regarding or relating to any Competing Programs.

1.70 "**First Commercial Sale**" means the first sale of a Product by a Party or its Affiliates or their Sublicensees to a Third Party (excluding any Sublicensee) for end use or consumption of such Product in a given country after Regulatory Approval and any Pricing and Reimbursement Approvals required to market and sell the Product has been granted with respect to such Product in such country in which such Product is sold. Furthermore, for purposes of clarity, the term "First Commercial Sale" as used in this Agreement shall not include: (a) sales for purposes of testing any Product, or of any Product samples; (b) any distribution or other sale solely for so- called treatment investigational new drug sales, named patient sales, compassionate or emergency use sales or pre-license sales, in each case provided that such Product is distributed without charge or sold at or below cost; (c) any sale of a Product by a Party to its Affiliate (or their Sublicensees), unless there is a subsequent resale of the Product by such Affiliate or Sublicensee; nor (d) other similar non-commercial sales.

1.71 "**FTE**" means a qualified full time person, or more than one person working the equivalent of a full-time person performing activities under a Program Plan, where "full time" is based upon a total of [***] working hours per Calendar Year. For clarity, no individual person can ever constitute more than a single FTE.

1.72 "**FTE Rate**" means [***] per FTE per Calendar Year, which shall be prorated for the period beginning on the Effective Date and ending on December 31, 2021, and which rate is subject to annual adjustment in each Calendar Year during the Term as agreed by the JSC based on the percentage increase or decrease in the Consumer Price Index for All Urban Consumers (CPI-U) published by the U.S. Bureau of Labor Statistics as of December 31 of each Calendar Year, over the level of such Consumer Price Index as of December 31 of the prior Calendar Year, with the first such increase to be effective on January 1, 2022. Notwithstanding the foregoing, for any Calendar Year during the Term that is less than a full year, the above referenced rate shall be proportionately reduced to reflect such portion of such full Calendar Year.

1.73 "**Gene Editing**" or "**Gene-Editing**" means [***].

1.74 "**GLP Tox Commitment Date**" means [***].

1.75 "**GLP Toxicology Study**" means, with respect to a Candidate or a Product, an *in vivo* toxicology study that is conducted in compliance with then-current Good Laboratory Practices.

1.76 "**Good Clinical Practices**" or "**GCP**" means the then-current good clinical practice standards, practices, and procedures promulgated or endorsed by the applicable Regulatory Authority as set forth in the guidelines imposed by such Regulatory Authority or Applicable Law, as each may be updated from time-to-time, to the extent such standards are not less stringent than applicable U.S. standards or ICH Guidelines, including ICH E6.

1.77 "**Good Laboratory Practices**" or "**GLPs**" means all applicable Good Laboratory Practice standards, including, as applicable: (a) as set forth in the then-current good laboratory practice standards promulgated or endorsed by the FDA as defined in 21 C.F.R. Part 58; and (b) the equivalent Applicable Laws in any relevant country, each as may be amended and applicable from time to time.

1.78 "**Good Manufacturing Practices**" or "**GMP**" means the then-current good manufacturing practice standards, practices, and procedures promulgated or endorsed by the applicable Regulatory Authority as set forth in the guidelines imposed by such Regulatory Authority or Applicable Law, as each may be updated from time-to-time, to the extent such standards are not less stringent than applicable U.S. standards as provided in, but not limited to, 21 C.F.R. Parts 210 and 211, or ICH Guidelines, including ICH Q7.

1.79 "**Good Research Practices**" or "**GRP**" means research practices consistent with the Research Quality Association (RQA), 2014 Quality in Research Guidelines for Working in Non-Regulated Research, as may be amended and applicable from time to time.

1.80 "**Government Official**" means: (i) any officer, employee (including physicians, hospital administrators, or other healthcare professionals), agent, representative, department, agency, de facto official, representative, corporate entity, instrumentality or subdivision of any government, military or international organization, including any ministry or department of health or any state-owned or affiliated company or hospital; (ii) any candidate for political office, any political party or any official of a political party, in each case for the purpose of obtaining or retaining business for or with, or directing business to, any Person, including either Party; or (iii) any Person acting in an official capacity on behalf of any of the foregoing.

1.81 "**Governmental Authority**" means any national, international, federal, state, provincial or local government, or political subdivision thereof, or any multinational organization or any authority, agency or commission entitled to exercise any administrative, executive, judicial, legislative, police, regulatory or taxing authority or power, and any court or tribunal (or any department, bureau or division thereof, or any governmental arbitrator or arbitral body).

1.82 “**Guide**” means [***].

1.83 “**IND**” means an investigational new drug application filed with the FDA or any similar application filed with a Regulatory Authority in a country other than the U.S. required to commence Clinical Trials of a pharmaceutical product.

1.84 “**IND Filing**” means, on a Program-by-Program basis, the filing of an IND for a Product in such Program.

1.85 “**Indication**” means a disease (a) for which a Product is indicated for treatment and (b) that is described in the Product label as required by the Regulatory Approval granted by the applicable Regulatory Authority. An Indication is only distinct from another Indication if (a) the diseases associated with such Indications are listed in two different blocks of the ICD-10 and (b) Regulatory Approvals are based, in whole or in part, on separate clinical studies.

1.86 “**Initial DT Co-Co Research Term**” means the period that commences on the Effective Date and continuing until [***] after the Effective Date, unless earlier terminated pursuant to this Agreement.

1.87 “**Initiation**” means, with respect to a Clinical Trial, the first dosing in the first human subject in such Clinical Trial.

1.88 “**Internal Compliance Codes**” means a Party’s internal policies and procedures intended to ensure that a Party complies with Applicable Laws, Party-Specific Regulations, and such Party’s internal ethical, medical and similar standards.

1.89 “**Internal Costs**” means [***].

1.90 “**Joint Patents**” means any Patents that Cover any Joint IP.

1.91 “**Know-How**” means any proprietary scientific or technical information, inventions, discoveries, results and data of any type whatsoever, in any tangible or intangible form, including inventions, discoveries, databases, safety information, practices, methods, instructions, techniques, processes, drawings, documentation, specifications, formulations, formulae, knowledge, knowhow, trade secrets, materials, skill, experience, test data and other information and technology applicable to formulations, compositions or products or to their manufacture, development, registration, use, marketing or sale or to methods of assaying or testing them, including pharmacological, pharmaceutical, medicinal chemistry, biological, chemical, biochemical, toxicological and clinical test data, physical and analytical, safety, quality control data, manufacturing, and stability data, materials, studies and procedures, and manufacturing process and development information, results and data.

1.92 “**Licensed Collaboration Technology**” means the Metagenomi Licensed Collaboration Technology or the Moderna Licensed Collaboration Technology, as applicable.

1.93 “**Licensed DT Co-Co Technology**” means the Metagenomi Licensed DT Co-Co Technology or the Moderna Licensed DT Co-Co Technology, as applicable.

1.94 "**Licensed DT Product**" means [***].

1.95 "**Licensed Product**" means a Licensed DT Product or a Licensed RT Product.

1.96 "**Licensed RT Product**" means [***].

1.97 "**Licensing Income**" means all amounts (including upfront payments, license fees, and milestone payments) received by a Party or any of its Affiliates from any licensee or sublicensee in consideration for the grant by such Party or any of its Affiliates of a license or sublicense of any of the rights granted under this Agreement with respect to a DT Co-Co Product in the Territory in accordance with Section 5.7.1 (Rights to Grant Licenses and Sublicenses in the Territory). Notwithstanding the foregoing, Licensing Income shall exclude any such payment received by a Party or any of its Affiliates from any such sublicensee in return for, as payment or consideration for, or otherwise in respect of: (a) equity or debt of a Party or its Affiliate purchased by such sublicensee at or below the fair market value of such equity or debt as of the date of the purchase, (b) reimbursement of such Party or its Affiliates' actual Manufacturing Costs of DT Co-Co Products with no markup, (c) reimbursement with no markup for the performance of services by such Party or its Affiliate under any such sublicense, (d) reimbursement of such Party's or its Affiliate's External Costs and other expenses, including patent expenses, (e) the sale of a Party or its Affiliate in whole or in part to a Third Party, or (f) a bona-fide loan, provided that any loan amounts that are forgiven shall be included in Licensing Income to the extent not otherwise captured in the foregoing clauses (a) – (e). Licensing Income in the form of non-cash consideration shall be valued at fair market value at the time of receipt by the relevant Party. In addition, (i) to the extent that a payment not explicitly tied to the DT Co-Co Product is made under a sublicense agreement that grants rights to both the DT Co-Co Product and one or more other products (*e.g.*, an upfront payment), then a *pro rata* portion of such payment shall be determined by agreement of the Parties reached in good faith based on an equitable method of determining the same that takes into account the relative fair market value of the sublicense, which shall be considered Licensing Income which such *pro rata* portion shall be calculated based on the number of products with respect to which rights are granted under such a sublicense agreement and (ii) to the extent that a payment is made under a sublicense that grants rights to the DT Co-Co Product in the Territory, then a *pro rata* portion of such payment shall be considered Licensing Income, which *pro rata* portion shall be allocated based on the value of the rights granted in the Territory, in each case ((i) and (ii)), only if such amounts have not also been shared by the Parties as Eligible Development Costs, Eligible Medical Affairs Costs, Commercialization Costs, or Other Operating Expenses.

1.98 "**LNP**" means [***].

1.99 "**Mammalian Cell Milestone**" means [***].

1.100 "**Manufacture**" means, with respect to a Product, those manufacturing-related activities that support the Development (including the seeking and obtaining of Regulatory Approvals) and Commercialization of such Product, including manufacturing process development and scale-up, validation, qualification and audit of clinical and commercial manufacturing facilities, bulk production and fill/finish work, related quality assurance technical support activities and CMC Activities, and including the synthesis, manufacturing, processing, formulating, packaging, labeling, holding, quality control testing and release of such Product. "Manufacturing" and "Manufactured" have a correlative meaning.

1.101 “**Manufacturing Cost**” has the meaning set forth in **Schedule B** (Manufacturing Cost).

1.102 “**Material Communications**” means written, telephonic, or in-person communications from or with any Regulatory Authority (including any meeting minutes from any meetings with any Regulatory Authority) concerning any of the following: key product quality attributes (*e.g*., purity), safety findings affecting the platform (*e.g*., Serious Adverse Events, emerging safety signals), clinical or non-clinical findings affecting patient safety, lack of efficacy, receipt or denial of Regulatory Approval, the design of Clinical Trials, or the need for additional non-clinical studies or pre-clinical studies (*e.g*., additional toxicology or carcinogenicity studies).

1.103 “**Materials**” means any tangible chemical or biological material, including any compounds, DNA and RNA, mRNA Constructs, polypeptides, clones, cells, plasmids, lipids, vectors, receptors, any other nucleic acids and Polynucleotides, proteins, peptides and any expression product, progeny, derivative or other improvement thereto, along with any tangible chemical or biological material embodying any Know-How.

1.104 “**Medical Affairs**” means activities conducted by, on behalf of, or in consultation with a Party’s medical scientific affairs departments, including medical affairs, field medical (medical scientific liaisons and payor liaisons), medical information and health economics outcomes research, development and execution of strategic and tactical medical product plans, generation of clinical and health economic outcomes data via post hoc analyses, Phase IV Optional Clinical Trials and real world evidence studies; development of economic models, production of value dossiers, key opinion leader strategy development and communications, generation and execution of responses to medical information requests, publication of scientific findings, presentations at medical scientific congresses and virtual medical engagements; medical education, symposia, congresses, advisory boards (to the extent related to Medical Affairs or clinical guidance), conducting health economics and outcomes research, conducting medical science liaison activities, activities performed in connection with patient registries, and other medical programs and communications, including continuing education grants, and research grants (including conducting investigator-initiated studies), to the extent related to medical scientific affairs and not to other activities that involve the promotion, marketing, sale, or other Commercialization of the DT Co-Co Products.

1.105 “**Medical Affairs Budget**” means, the budget for activities under the applicable Medical Affairs Plan for each DT Co-Co Product.

1.106 “**Medical Affairs Costs**” means [***].

1.107 “**Metagenomi Housemarks**” means (a) the corporate logo of Metagenomi, (b) the trademark “Metagenomi”, (c) any other Trademark, trade name, or service mark (whether registered or unregistered) containing the word “Metagenomi”, (d) any other corporate logo or Trademark of Metagenomi used by Metagenomi to identify Metagenomi or any of its Affiliates, and (e) all intellectual property rights and goodwill associated with any and all of the foregoing in clauses (a) through (e).

1.108 “**Metagenomi Licensed Collaboration Technology**” means the Metagenomi Licensed DT Co-Co Technology, Licensed RT Technology and Licensed DT Moderna Technology.

1.109 “**Metagenomi Licensed DT Co-Co Know-How**” means all materials and Know-How that Metagenomi or any of its Affiliates Control as of the Effective Date or during the Term that (a) relates or otherwise pertains to the DT Co-Co Target or (b) is otherwise necessary or useful in Researching, Developing, Manufacturing, Commercializing or otherwise Exploiting DT Co-Co Products Directed Against such DT Co-Co Target in the DT Field in the Territory, in each case of (a) and (b), to the extent Metagenomi makes available or is required to make available to Moderna pursuant to this Agreement. For clarity, “Metagenomi Licensed DT Co-Co Know-How” includes all of Metagenomi’s rights in the Metagenomi Program Technology constituting materials and Know-How that satisfy the foregoing and Metagenomi’s interest in any jointly-owned materials or Know-How within the Program Technology that satisfies the foregoing.

1.110 “**Metagenomi Licensed DT Co-Co Patent**” means any Patent that Metagenomi or any of its Affiliates Control as of the Effective Date or during the Term that (a) Covers any of the Metagenomi Licensed DT Co-Co Know-How, (b) Covers or claims the DT Co-Co Target or (c) would otherwise Cover any of the Research, Development, Manufacture, Commercialization or other Exploitation of one or more DT Co-Co Products Directed Against such DT Co-Co Target in the DT Field in the Territory, in each case of (a), (b) and (c), to the extent Metagenomi makes available or is required to make available to Moderna pursuant to this Agreement. For clarity, “Metagenomi Licensed DT Co-Co Patent” includes all of Metagenomi’s rights in the Metagenomi Program Technology constituting Patents that satisfy the foregoing, and Metagenomi’s interest in any Joint Patent that satisfies the foregoing.

1.111 “**Metagenomi Licensed DT Co-Co Technology**” means, individually or collectively, the Metagenomi Licensed DT Co-Co Patents and Metagenomi Licensed DT Co-Co Know-How.

1.112 “**Moderna Housemarks**” means (a) the corporate logo of Moderna, (b) the trademark “Moderna”, (c) any other Trademark, trade name, or service mark (whether registered or unregistered) containing the word “Moderna”, (d) any other corporate logo or Trademark of Moderna used by Moderna to identify Moderna or any of its Affiliates, and (e) all intellectual property rights and goodwill associated with any and all of the foregoing in clauses (a) through (e).

1.113 “**Moderna Licensed Collaboration Technology**” means Moderna’s Background Technology, RT Program Technology, and DT Program Technology, and the Moderna Licensed DT Co-Co Technology.

1.114 "**Moderna Licensed DT Co-Co Know-How**" means all materials and Know-How that Moderna or any of its Affiliates Control as of the Effective Date or during the Term that (a) relates or otherwise pertains to the DT Co-Co Target or (b) is otherwise necessary or useful in Researching, Developing, Manufacturing, Commercializing or otherwise Exploiting DT Co-Co Products Directed Against such DT Co-Co Target in the DT Field in the Territory, in each case of (a) and (b), to the extent Moderna makes available to Metagenomi pursuant to this Agreement. For clarity, "Moderna Licensed DT Co-Co Know-How" includes all of Moderna's rights in the Moderna Program Technology constituting materials and Know-How that satisfy the foregoing, and Moderna's interest in any jointly-owned materials or Know-How within the Program Technology that satisfies the foregoing.

1.115 "**Moderna Licensed DT Co-Co Patent**" means any Patent that Moderna or any of its Affiliates Control as of the Effective Date or during the Term that (a) Covers any of the Moderna Licensed DT Co-Co Know-How, (b) Covers or claims the DT Co-Co Target or (c) would otherwise Cover any of the Research, Development, Manufacture, Commercialization or other Exploitation of one or more DT Co-Co Products Directed Against such DT Co-Co Target in the DT Field in the Territory, in each case of (a), (b) and (c), to the extent Moderna makes available to Metagenomi pursuant to this Agreement. For clarity, "Moderna Licensed DT Co-Co Patent" includes all of Moderna's rights in the Moderna Program Technology constituting Patents that satisfy the foregoing and Moderna's interest in any Joint Patent that satisfies the foregoing.

1.116 "**Moderna Licensed DT Co-Co Technology**" means, individually or collectively, the Moderna Licensed DT Co-Co Patents and Moderna Licensed DT Co-Co Know-How.

1.117 "**mRNA Construct**" means [***].

1.118 "**mRNA-LNP Technology**" means [***].

1.119 "**Mutual Confidentiality Agreement**" means that certain Mutual Confidentiality Agreement entered into between the Parties as of March 1, 2021.

1.120 "**NDA**" means (a) any New Drug Application (as defined in the FD&C Act), any Biologics License Application ("**BLA**") (as defined in the PHSA) and applicable regulations promulgated thereunder by the FDA filed with the FDA to gain approval to market a pharmaceutical product in the U.S., (b) a marketing authorization application ("**MAA**") filed with (i) the EMA under the centralized EMA filing procedure to gain approval to market a biopharmaceutical in the E.U., or (ii) a Regulatory Authority in any E.U. country if the centralized EMA filing procedure is not used to gain approval to market a biopharmaceutical in the E.U., or (c) any other equivalent or related Regulatory Filing filed in support of approval to market a biopharmaceutical in any country outside of the U.S. or E.U., and, in each case ((a) through (c)), including any amendments thereto, and supplemental applications, but excluding applications for Reimbursement Approval.

1.121 "**Net Sales**" means, with respect to any Product, the gross amounts invoiced by a Party (including any Affiliate of such Party) or any Sublicensee thereof (each, a "**Selling Party**") to Third Party customers for sales of such Product in the Territory, less the following deductions actually incurred, allowed, paid, accrued or specifically allocated in its financial statements for such Product, all in accordance with U.S. GAAP, consistently applied, for:

[***]

Such amounts shall be determined from the books and records of such Party or its Sublicensee maintained in accordance with U.S. GAAP or, in the case of Sublicensees, such similar accounting principles, consistently applied. Net Sales shall not be imputed to transfers of Products for use in clinical trials, non-clinical development activities or other development activities with respect to Products, as applicable, by or on behalf of the Parties, for bona fide charitable purposes or for compassionate use, patient program or for Product samples, if no monetary consideration exceeding the cost of goods for such Product is received for such transfers.

In the event that the Product is sold as part of a Combination Product (where "**Combination Product**" means [***], the Net Sales of such Product, for the purposes of determining royalty payments, shall be determined by multiplying the Net Sales of the Combination Product by the fraction, A / (A+B), where A is the weighted average sale price of the Product when sold separately for the same dosage as contained in the Combination Product in finished form, and B is the weighted average sale price of the Other Product(s) sold separately in finished form.

In the event that the weighted average sale price of the Product can be determined but the weighted average sale price of the Other Product(s) cannot be determined, Net Sales for purposes of determining royalty payments shall be calculated by multiplying the Net Sales of the Combination Product by the fraction A / C where A is the weighted average sale price of the Product when sold separately in finished form and C is the weighted average sale price of the Combination Product.

In the event that the weighted average sale price of the Other Product(s) can be determined but the weighted average sale price of the Product cannot be determined, Net Sales for purposes of determining royalty payments shall be calculated by multiplying the Net Sales of the Combination Product by the following formula: one (1) minus (B / C) where B is the weighted average sale price of the Other Product(s) when sold separately in finished form and C is the weighted average sale price of the Combination Product.

In the event that the weighted average sale price of both the Product and the Other Product(s) in the Combination Product cannot be determined, the Parties shall enter into good faith negotiations to determine the appropriate value to be allocated to the Product and the Other Product(s).

The weighted average sale price for a Product, Other Product, or Combination Product shall be calculated once each Calendar Year and such price shall be used during all applicable royalty reporting periods for the entire following Calendar Year. When determining the weighted average sale price of a Product, Other Product or Combination Product, the weighted average sale price shall be calculated by dividing the sales dollars (translated into U.S. dollars) by the units of active ingredient sold during the twelve (12) months (or the number of months sold in a partial Calendar Year) of the preceding Calendar Year for the respective Product, Other Product or Combination Product. In the initial Calendar Year, a forecasted weighted average sale price shall be used for the Product, Other Products or Combination Product. Any over or under payment in the initial year due to a difference between forecasted and actual weighted average sale prices shall be paid or credited in the first royalty payment of the following Calendar Year.

Adjuvants and excipients shall not be deemed to be "active compound(s) or ingredients" except where such adjuvant or excipient is recognized by the FDA as an active ingredient in accordance with 21 C.F.R. § 210.3(b)(7).

1.122 "**New Affiliate**" means a Third Party that becomes an Affiliate of a Party after the Effective Date through or after a Change of Control of such Party, other than (i) such Party, (ii) any Affiliates of such Party immediately before the consummation of such Change of Control, or (iii) any other Affiliates such Party or its pre-consummation Affiliates controls (directly or indirectly) after such Change of Control (including any direct or indirect subsidiaries of such Party or any such pre-consummation Affiliates).

1.123 "**NHP Milestone**" means [***].

1.124 "**Non-Orphan Indication**" mean an Indication other than an Orphan Indication.

1.125 "**Nonclinical Studies**" means all non-human animal studies, including preclinical studies and toxicology studies, of Products.

1.126 "**Operating Profits or Losses**" means the profits or losses for a DT Co-Co Product in the Territory calculated in accordance with Section 7.4 (Co-Co Products Profit and Loss Share).

1.127 "**Orphan Indication**" means an Indication for use of a drug to treat a rare disease or condition where the number of people affected by the disease or condition in the U.S. is less than two hundred thousand (200,000) persons or where the Indication for use otherwise meets the criteria for orphan drug designation under section 526(a) of the FD&C Act and 21 C.F.R. 316.21.

1.128 "**Other Operating Expenses**" means [***].

No expense included as an Other Operating Expense shall also be included as a deduction under Net Sales, Commercialization Cost, Eligible Development Cost, Cost of Sales, or Eligible Medical Affairs Cost. Other Operating Expenses specifically exclude any costs or expenses of a Party or its Affiliates to the extent caused by such Party or its Affiliate's breach of this Agreement.

1.129 "**Overspend**" means, for a particular DT Co-Co Product, any amount that exceeds Allowable Overruns for a Calendar Year on a year-to-date basis set forth in any Research Budget, Development Budget, Medical Affairs Budget, or Commercialization Budget, as applicable, for such Calendar Year; provided that such amount is not attributable to (a) the breach of this Agreement or (b) the gross negligence or willful misconduct of either Party or any of its Affiliates.

1.130 "**Packaging and Labeling**" means primary, secondary, or tertiary packaging and labeling of a DT Co-Co Product (in its commercial packaging presentation) for sale or use in the Territory, consistent with respect to the Commercialization Plan, including the Approved Labeling and insertion of materials such as patient inserts, patient medication guides, and professional inserts and any other written, printed, or graphic materials accompanying such DT Co-Co Product and any brand security or anti-counterfeiting measures included in the packaging elements for such DT Co-Co Product considered to be part of the finished packaged DT Co-Co Product, and all testing and release thereof.

1.131 "**Patents**" means: (a) pending patent applications, issued patents, utility models and designs; (b) reissues, substitutions, confirmations, registrations, validations, re-examinations, additions, continuations, continued prosecution applications, continuations-in-part, or divisions of or to any of the foregoing; and (c) extensions, renewals or restorations of any of the foregoing by existing or future extension, renewal or restoration mechanisms, including supplementary protection certificates or the equivalent thereof.

1.132 "**Person**" means any corporation, limited or general partnership, limited liability company, joint venture, trust, unincorporated association, governmental body, authority, bureau or agency, any other entity or body, or an individual.

1.133 "**Pharmacovigilance Costs**" means [***].

1.134 "**Phase I Clinical Trial**" means a clinical trial of a Product generally consistent with 21 C.F.R. § 312.21(a) (or the non-U.S. equivalent thereof).

1.135 "**Phase I Readout**" means the substantially final biostatistical analysis of primary and secondary clinical outcomes or endpoints, as applicable, for a Phase I Clinical Trial prior to the publication of the final clinical study report for such Phase I Clinical Trial.

1.136 "**Phase II Clinical Trial**" means a clinical trial of a Product generally consistent with 21 C.F.R. § 312.21(b) (or the non-U.S. equivalent thereof).

1.137 "**Phase III Clinical Trial**" means a clinical trial of a Product generally consistent with 21 C.F.R. § 312.21(c) (or the non-U.S. equivalent thereof).

1.138 "**Phase IV Optional Clinical Trial**" means any post-approval clinical study for a pharmaceutical or biologic product in a country with respect to any Indication for which Regulatory Approval has been received in a particular country, and that is principally intended to support the Commercialization of a product, including (a) investigator-initiated clinical studies initiated after Regulatory Approval of a product, (b) post-marketing surveillance studies of a product, and (c) any health and economic outcomes research and other reviews/analyses/studies relating to value and access issues, in each case, that is not a Phase IV Required Clinical Trial.

1.139 "**Phase IV Required Clinical Trial**" means any post-approval clinical study initiated following receipt of Regulatory Approval for a pharmaceutical or biologic product in a country in an Indication or to be conducted after receipt of Regulatory Approval of a product in an Indication, in each case, that was required by the applicable Regulatory Authority in any country in the Territory as a condition of receiving or maintaining a Regulatory Approval for such product with respect to such Indication in such country (such as post-marketing approval studies and observational studies, if required by any Regulatory Authority in any country in the Territory to support or maintain Regulatory Approval for such product in such Indication in such country).

1.140 "**PHSA**" means the United States Public Health Service Act, as amended.

1.141 "**Pivotal Trial**" means any (a) Clinical Trial in humans that meets the requirements of 21 C.F.R. § 312.21(c), as amended (or its successor regulation), or, with respect to any other country or jurisdiction, the equivalent of such a clinical trial in such other country or jurisdiction, or (b) other Clinical Trial of a pharmaceutical or biologic product, the results of which, together with prior data and information concerning such product, are intended to be or otherwise are sufficient, without any additional Clinical Trial, to meet the evidentiary standard for demonstrating the safety, efficacy, and of such active substance of such product established by a Regulatory Authority in any particular jurisdiction and is intended to support, or otherwise supports, the submission of an MAA in such jurisdiction (including any bridging study).

1.142 "**Polynucleotide**", [***].

1.143 "**Pricing and Reimbursement Approval**" means an approval, agreement, determination, or other decision by the applicable Governmental Authority that establishes prices charged to end-users for biopharmaceutical products that a pharmaceutical or biologic product shall be reimbursed by the Governmental Authorities or Regulatory Authorities in the Territory or any other approvals related to pricing, reimbursement, or access to a pharmaceutical or biologic product (including all activities related to tenders and contracts).

1.144 "**Pricing Matters**" means [***].

1.145 "**Product**" means Licensed Product or DT Co-Co Product, as the case may be.

1.146 "**Product Marks**" means any Trademark (whether registered or unregistered) for use on, with, or to refer to a DT Co-Co Product or used with patient support or other information or services or Product Materials associated with a DT Co-Co Product in the Territory during the Term, including related internet domain names.

1.147 "**Product Materials**" means any and all promotional materials, training materials, medical education materials, Packaging and Labeling, and all other literature or other information related to a DT Co-Co Product for use in the Territory.

1.148 "**Program**" means the RT Technology Research Program, the RT Preclinical Research Programs, the DT Target Evaluation Program, the DT Moderna Research Programs and the DT Co-Co Program, as the case may be. For clarity, references to a Program (and the underlying definitions) hereunder refer to such Program both during the Research Term and thereafter for the Term (including the applicable Collaboration Target and related Products).

1.149 "**Program Patents**" means all Patents that Cover any of the Program Technology.

1.150 "**Program Plan**" means the RT Technology Research Plan, the RT Preclinical Research Plan, the DT Target Evaluation Plan, the DT Moderna Research Plan or a DT Co-Co Plan, as applicable.

1.151 "**Prosecute and Maintain**" or "**Prosecution and Maintenance**" with respect to a particular Patent, means all activities associated with the preparation, filing, prosecution and maintenance of such Patent, together with the conduct of interferences, derivation proceedings, *inter partes* review and post-grant review, the defense of oppositions and other similar proceedings with respect to that Patent, but not including any activities associated with claims, including as a counterclaim or declaratory judgment action, of unpatentability, invalidity or unenforceability of such Patent that are brought by a Third Party, in connection with an Infringement under Section 8.3 (Infringement by Third Parties) or otherwise.

1.152 “**Region**” means (A) with respect to Moderna, Ex-U.S., and (B) with respect to Metagenomi, U.S.

1.153 “**Regulatory Approval**” means, collectively, any and all approvals (including supplements, amendments, pre- and post-approvals, Pricing and Reimbursement Approvals), licenses, registrations, permits, notifications, and authorizations (including marketing and labeling authorizations) or waivers of any Regulatory Authority that are necessary for the testing, research, development, registration, manufacture (including formulation), use, storage, import, export, transport, promotion, marketing, distribution, offer for sale, sale or other commercialization of a pharmaceutical product (including any Product) in any country or jurisdiction.

1.154 “**Regulatory Authority**” means any Governmental Authority that has responsibility in its applicable jurisdiction over the testing, research, development, registration, manufacture (including formulation), use, storage, import, export, transport, promotion, marketing, distribution, offer for sale, sale or other commercialization of pharmaceutical products (including any Product) in a given jurisdiction. For countries where governmental approval is required for pricing or reimbursement for a pharmaceutical product (including any Product) to be reimbursed by national health insurance (or its local equivalent), Regulatory Authority includes any Governmental Authority whose review or approval of pricing or reimbursement of such product is required.

1.155 “**Regulatory Costs**” means Internal Costs and External Costs incurred by either Party (or their Affiliates), as applicable, in connection with the preparation or maintenance of Regulatory Documentation with respect to the DT Co-Co Products, including any meetings with Regulatory Authorities in connection therewith and any filing, user, maintenance and other fees paid to Regulatory Authorities, preparation of Regulatory Filings for, and the obtaining and maintenance of Regulatory Approvals including compliance with Regulatory Approvals and requirements of such Regulatory Authorities, adverse event recordation and reporting and regulatory affairs activities.

1.156 “**Regulatory Documentation**” means all: (a) applications (including all INDs and applications for Regulatory Approval), registrations, licenses, authorizations and approvals (including Regulatory Approvals); (b) correspondence and reports submitted to or received from Regulatory Authorities (including minutes and official contact reports relating to any communications with any Regulatory Authority) and all supporting documents with respect thereto, including all adverse event files and complaint files; (c) supplements or changes to any of the foregoing following Regulatory Approval; and (d) clinical and other data, including Clinical Trial data, contained or relied upon in any of the foregoing; in each case ((a), (b), (c) and (d)) relating to a Collaboration Target and Products Directed Against a Collaboration Target.

1.157 “**Regulatory Exclusivity**” means, with respect to each Product in any country in the Territory, a period of exclusivity (other than Patents exclusivity) granted or afforded by Applicable Laws or by a Regulatory Authority in such country that prevents the approval or marketing of any Biosimilar Product of such Licensed Product in such country, including reference product exclusivity under Section 351(k)(7)(C) of the PHSA and pediatric exclusivity under Section 351(m) of the same and any foreign equivalents.

1.158 “**Regulatory Filings**” means all applications, filings, and dossiers, and other documents, data, results, and materials submitted to a Regulatory Authority in support of Development or Commercialization of a pharmaceutical or biologic product for an Indication, including for the purpose of obtaining Regulatory Approval from that Regulatory Authority. Regulatory Filings include all INDs, NDAs, BLAs and other applications for Regulatory Approval and their equivalents.

1.159 “**Regulatory Responsible Party**” means, with respect to a DT Co-Co Product, on a country-by-country basis in the Territory, (i) the Lead Party prior to any Opt-Out and the Opt-Out Date or (ii) the Primary Party after the Opt-Out Date.

1.160 “**Reimbursement Approval**” means an approval, agreement, determination, or other decision by the applicable Governmental Authority that establishes prices charged to end-users for biopharmaceutical products that a pharmaceutical or biologic product shall be reimbursed by the Governmental Authorities or Regulatory Authorities in the Territory or any other approvals related to pricing, reimbursement, or access to a pharmaceutical or biologic product (including all activities related to tenders and contracts).

1.161 “**Research**” means, with respect to a Collaboration Target, any research and pre- clinical activities through delivery of a Data Package for such Collaboration Target, as set forth in the applicable Program Plan for such Collaboration Target.

1.162 “**Research Budget**” means RT Research Budget, DT Moderna Research Budget, or DT Co-Co Research Budget, as applicable.

1.163 “**Research Costs”** means [***].

1.164 “**Research Term**” means (i) with respect to the RT Programs, the RT Research Term, (ii) with respect to the DT Programs, the DT Moderna Research Term, or (iii) with respect to the DT Co-Co Program, the Term.

1.165 “**Reserved DT Targets**” means any of the nine (9) targets identified in **Schedule D** (Reserved DT Targets).

1.166 “**Results**” means all data (including raw data that has not undergone any processing, either manually or through automated computer software, processed, distilled, analyzed or summarized data, and all representations of part or all of the data), results, findings, analyses and observations that are created or in any way generated by a Party or Third Parties acting on a Party’s behalf pursuant to this Agreement in the applicable Program. Results do not include Patents.

1.167 “**Rodent Milestone**” means [***].

1.168 “**RT Field**” means *in vivo* Gene Editing for a therapeutic, ameliorative or prophylactic application [***].

1.169 "**RT In-Licenses**" means RT Moderna In-License Agreements or RT Metagenomi In-License Agreements, as applicable.

1.170 "**RT Option Fee**" means ten million Dollars ($10,000,000) for each RT Preclinical Research Program with respect to which Moderna has exercised an RT Option.

1.171 "**RT Program Know-How**" means, with respect to a Party, on an RT Program-by- RT Program basis, all materials and Know-How that comes into the Control of such Party or any of its Affiliates during the Term that relates or otherwise pertains to such RT Program, including that (a) relates or otherwise pertains to the RT Target of such RT Program, (b) is otherwise necessary or useful in Researching, Developing, Manufacturing, Commercializing or otherwise Exploiting Licensed Products Directed Against such RT Target in the RT Field in the Territory, or (c) relates to novel delivery technology relevant to the RT Field, and in the case of Moderna, for each of (a), (b) and (c) to the extent Moderna makes any of the foregoing available to Metagenomi pursuant to this Agreement. For clarity, "RT Program Know-How" includes all of such Party's rights in its solely-owned Program Technology constituting materials and Know-How that satisfy the foregoing, and any jointly-owned materials or Know-How within the Program Technology that satisfies the foregoing.

1.172 "**RT Program Patents**" means all Patents that Cover any of the RT Program Know-How. For clarity, RT Program Patents include any Joint Patents that satisfy the foregoing.

1.173 "**RT Program Technology**" means the RT Program Know-How and the RT Program Patents.

1.174 "**RT Research Term**" means the period that commences on the Effective Date and continuing until [***] after the Effective Date (the "**Initial RT Research Term**"), as may be extended by Moderna pursuant to Section 3.8 (RT Research Term Extension), unless earlier terminated pursuant to this Agreement.

1.175 "**RT Research Term Extension Fee**" means, with respect to (i) extension of the Initial RT Research Term by [***]; (ii) extension of the Initial RT Research Term by [***]; and (iii) extension of the Initial RT Research Term by [***].

1.176 "**RT Target**" means [***].

1.177 "**RT Technology Milestones**" means, collectively, the Mammalian Cell Milestones, the Rodent Milestones and the NHP Milestones.

1.178 "**Safety Concern**" means, with respect to any Product, (a) any safety concern required to be reported under 21 C.F.R. § 312.32 if an IND with respect to such product was open at the time of the observation (or that would be so reportable if an IND was not open at such time), or (b) a toxicity or drug safety issue or a Serious Adverse Event reasonably related to or observed in connection with Development or Commercialization activities with respect to a Product, as determined by either Party, in accordance with its standard operating procedures.

1.179 "**Sales Force**" means the full set of sales representatives, field managers, district managers, regional managers, national sales managers, regional trainers, medical science trainers and the training department and other personnel assigned by the Parties for each DT Co-Co Product.

1.180 "**Serious Adverse Event**" means an adverse drug experience or circumstance that results in any of the following outcomes (a) death, (b) life threatening condition, (c) inpatient hospitalization or a prolongation of existing hospitalization, (d) persistent or significant disability or incapacity or substantial disruption of the ability to conduct normal life functions, (e) or a congenital anomaly/birth defect, (f) significant intervention required to prevent permanent impairment or damage, or (g) a medical event that may not result in death, be life threatening, or require hospitalization but, based on appropriate medical judgment, that may jeopardize the patient or subject and may require medical or surgical intervention to prevent one of the outcomes described in clauses (a) through (f).

1.181 "**Sublicensee**" means a Third Party that is granted a license or sublicense to research, develop, make, have made, use, keep, import, export, offer for sale, sell, or otherwise exploit one or more Products in the Field in the Territory (including any option to any of the foregoing), beyond the mere right to purchase such Products from a Party and its Affiliates, and excludes each Party's Affiliates or Third Party subcontractors that act solely for such Party or its Affiliates in the supply chain or that perform discrete services (as opposed to being granted broad rights or responsibilities) on behalf of such Party or its Affiliates.

1.182 "**Territory**" means worldwide.

1.183 "**Third Party**" means a Person other than (a) Moderna or its Affiliates and (b) Metagenomi or its Affiliates.

1.184 "**Third Party Payment**" means all milestone, royalty, and other payments (including required reimbursement for costs incurred in connection with enforcement or other actions and required sharing of certain recoveries) paid by a Party to any Third Party pursuant to a Co-Co In-License.

1.185 "**Trademark**" means any trademark, trade name, service mark, service name, product name, brand, domain name, trade dress, logo, slogan, or other indicia of origin or ownership, and (a) all registrations, applications for registrations, and other intellectual property rights associated with any of the foregoing, and (b) the goodwill associated with each of the foregoing.

1.186 "**U.S.**" means the United States of America and its territories and possessions.

1.187 "**U.S. GAAP**" means generally accepted accounting principles as practiced in the U.S., as generally and consistently applied throughout each Party's organization.

1.188 "**Valid Claim**" means a claim of any pending Patent application or any issued, unexpired U.S. or granted foreign Patent that has not been dedicated to the public, disclaimed, abandoned or held invalid or unenforceable by a court or other body of competent jurisdiction from which no further appeal can be taken, and that has not been explicitly disclaimed, or admitted in writing to be invalid or unenforceable or of a scope not Covering a particular product or service through reissue, disclaimer or otherwise, provided *that* if a particular claim has not issued within seven (7) years of its initial priority date, it shall not be considered a Valid Claim for purposes of this Agreement unless and until such claim is included in an issued or granted Patent, notwithstanding the foregoing definition.

1.189 **Additional Definitions**. These additional definitions have the meaning set forth in the following Sections:

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Article 2
GOVERNANCE AND JOINT STEERING COMMITTEE

2.1 **Alliance Manager**. Within thirty (30) days following the Effective Date, each Party shall appoint an individual to act as the Alliance Manager for such Party (each, an "**Alliance Manager**"). Each Alliance Manager shall thereafter be permitted to attend meetings of the JSC or any of its subcommittees as a nonvoting observer. The Alliance Managers shall be the primary point of contact for the Parties regarding the collaboration activities contemplated under this Agreement and shall help facilitate all such activities hereunder.

2.2 **Working Groups**. The Parties shall establish one or more working groups (each, a "**Working Group**") to oversee the activities of the Program Plans. In addition, from time to time, the Parties may establish a Working Group to oversee particular additional projects or activities. Each Working Group shall undertake the activities delegated to it by the JSC. During the process of establishing each Working Group, such Working Group and the JSC shall agree regarding which matters such Working Group shall resolve on its own and which matters such Working Group shall advise the JSC regarding (and with respect to which such advice-specific matters the JSC shall resolve).

2.3 **Joint Steering Committee**. Within thirty (30) days after the Effective Date, the Parties shall establish a cross-functional, joint steering committee (the "**JSC**") composed of up to three (3) senior representatives from each Party that shall oversee and manage the collaboration between the Parties with respect to each Program during the applicable Term. The JSC may, from time to time, establish subcommittees as it deems necessary to further the purposes of this Agreement; provided that the JSC shall in any event establish (i) a joint research subcommittee ("**JRC**") in accordance with Section 2.6 (Joint Research Committee), (ii) a joint development subcommittee ("**JDC**") in accordance with Section 2.7 (Joint Development Committee), (iii) a joint commercialization subcommittee ("**JCC**") in accordance with Section 2.8 (Joint Commercialization Committee), and (iv) a joint patent subcommittee ("**JPC**") in accordance with Section 2.9 (Joint Patent Committee). Each Party shall appoint its respective representatives to the JSC from time to time, and may change its representatives, in its sole discretion, effective upon notice to the other Party designating such change. The representatives from each Party shall have appropriate technical credentials, experience and knowledge pertaining to and ongoing familiarity with the Research and the applicable Programs. One (1) of the Moderna representatives and one (1) of the Metagenomi representatives on the JSC shall be designated the JSC Co-Chairs (each, a "**JSC Co-Chair**"). The JSC Co-Chairs shall be responsible for calling meetings of the JSC, circulating agendas and performing administrative tasks required to assure efficient operation of the JSC but shall not have any extra or additional vote.

2.4 **Specific Responsibilities of the JSC**. The JSC shall:

2.4.1 discuss, and approve each Research Budget and applicable Program Plan (including the specific contents of each Data Package) and, for the DT Co-Co Program, the criteria for DC Nomination, and review, discuss, and approve any amendments that may be necessary or desired to each Research Budget and applicable Program Plan;

2.4.2 address issues arising in the performance of the applicable Program Plans;

2.4.3 determine whether a Program Plan has been completed;

2.4.4 establish subcommittees, direct and oversee any operating subcommittee on all significant issues, and resolve disputed matters that may arise at the subcommittees;

2.4.5 review, discuss, and determine whether to approve the Commercial Overhead Charge, as described in Section 1.25 ("**Commercial Overhead Charge**");

2.4.6 review, discuss, and determine whether to approve as Allowable Overruns any amounts that are more than [***] above the most recent JSC-approved budgeted costs and expenses for a Calendar Year on a year-to-date basis set forth in any Research Budget, Development Budget, Medical Affairs Budget, or Commercialization Budget, as applicable, for such Calendar Year, as described in Section 1.2 ("**Allowable Overruns**");

2.4.7 review, discuss, and determine whether to approve any changes in the FTE Rate, as described in Section 1.72 ("**FTE Rate**");

2.4.8 review, discuss, and determine whether to approve each update to each applicable Program Plan, including any significant financial review, in each case, proposed by the Parties or a JSC subcommittee;

2.4.9 review, discuss, and determine whether to approve any Overspend for a DT Co-Co Product, as described in Sections 6.3.2 (Eligible Co-Co Research Cost), 6.4.4(a) (Eligible Development Costs), 6.6.3 (Medical Affairs Costs) and 6.7.3 (Commercialization Costs and Expenses);

2.4.10 review, discuss, and determine whether to approve any proposal to add a Proposed Combination Product to the Development Plan for a DT Co-Co Product, as described in Section 6.4.8 (Combination Products);

2.4.11 review, discuss, and determine whether to approve Pricing and Reimbursement Approvals for the DT Co-Co Products in accordance with Section 6.7.5 (Pricing Matters; Pricing and Reimbursement Approvals; Information Sharing; Pricing Strategy);

2.4.12 perform such other functions as appropriate, and direct each subcommittee to perform such other functions as appropriate, to further the purposes of this Agreement, in each case as agreed in writing by the Parties;

2.4.13 resolve all matters that are in dispute as escalated to the JSC by a subcommittee that cannot be resolved by such subcommittee; and

2.4.14 perform any and all tasks and responsibilities that are expressly attributed to the JSC under this Agreement or as otherwise agreed by the Parties in writing.

2.5 **Meetings**. The JSC and each of its subcommittees shall each meet at least once per Calendar Quarter during the Research Term, and more often as may be necessary. The JSC and each of its subcommittees may conduct such meetings by telephone, videoconference, internet meeting or in person, as determined by their members for each meeting. Each Party may call special meetings of the JSC or any of its subcommittees with at least ten (10) Business Days' prior written notice, or a shorter time period in exigent circumstances, to resolve particular matters requested by such Party that are within the purview of the JSC or the subcommittee, as applicable. Each Party may invite a reasonable number of participants, in addition to its representatives, to attend JSC and subcommittee meetings in a nonvoting capacity; provided that if either Party intends to have any Third Party (including any consultant) attend such a meeting, such Party shall provide prior written notice to the other Party. Such Party shall ensure that such Third Party is bound by confidentiality and non-use obligations consistent with the terms of this Agreement. Each Party is responsible for its own expenses incurred in connection with participating in and attending all such meetings. Each Party's Alliance Manager or his/her designee shall keep minutes of each JSC and subcommittee meeting that records in writing all decisions made, action items assigned or completed and other appropriate matters. Each Party's Alliance Manager shall help consolidate and then send meeting minutes to all members of the JSC or the subcommittee, as applicable, promptly after a meeting for review. Each member shall have ten (10) Business Days from receipt in which to comment on and to approve the minutes (such approval not to be unreasonably withheld, conditioned or delayed). If a member, within such time period, does not notify either Party's Alliance Manager that s/he does not approve of the minutes, the minutes shall be deemed to have been approved by such member.

2.6 **Joint Research Committee**.

2.6.1 The JSC shall establish the JRC, consisting of an equal number of subject matter experts from each of Moderna and Metagenomi, within five (5) days after the establishment of the JSC (or such longer period of time as mutually agreed by the Parties), each Party shall designate in writing three such representatives for the JRC. The JRC may elect to vary the number of representatives from time to time. Either Party may replace its representatives with similarly qualified individuals at any time upon prior written notice to the other Party (including via email notification). If agreed by the JRC on a case-by-case basis (such agreement not to be unreasonably withheld, conditioned, or delayed), the JRC may invite other personnel of either Party from relevant support functions to participate in the discussions and meetings of the JRC, provided that such participants shall have no voting authority at the JRC and that any non-employee participants are bound by written obligations of non-use and confidentiality and obligations to assign intellectual property that are at least as restrictive or protective of the Parties and their respective intellectual property and Confidential Information as those set forth in this Agreement.

2.6.2 **Specific responsibilities of the JRC**. The JRC shall have the following responsibilities:

(a) discuss, prepare and submit to the JSC for approval each Research Budget and Program Plan (including the specific contents of each Data Package) and, for the DT Co-Co Program, the criteria for DC Nomination, and all annual and interim amendments to each Research Budget and Program Plan;

(b) determine whether a DT Co-Co Candidate has met the approved criteria for DC Nomination;

(c) monitor and report the progress of the Research activities and ensuring open and frequent exchange between the Parties;

(d) identify and resolve any scientific or technical conflicts between the Parties;

(e) review, modify and oversee the implementation of each Program Plan including coordination of Research activities between the Parties;

(f) coordinate with the JPC all patent activities as they relate to the results of the Research activities in keeping with the overall patent strategy delineated by the JPC;

(g) take such action that is contemplated for the JRC to take under this Agreement; and

(h) perform such other functions as directed by the JSC in accordance with Section 2.4.12 (Specific Responsibilities of the JSC).

2.7 **Joint Development Committee**.

2.7.1 **General**. Within thirty (30) days after DC Nomination, or earlier as determined by the JSC, the Parties shall establish the JDC to coordinate the Development activities (including the related regulatory activities) of the Parties related to the Development of DT Co-Co Candidate in accordance with the Development Plan. Each Party shall initially appoint three (3) representatives to the JDC, with each representative having knowledge and expertise in the development of compounds and products similar to the DT Co-Co Candidates and the DT Co-Co Products and having sufficient seniority within the applicable Party to make decisions arising within the scope of the JDC's responsibilities. The JDC may change its size from time to time; provided, that the JDC shall consist at all times of an equal number of representatives of each Party. Each Party may replace any of its JDC representatives with a qualified employee of such Party at any time upon written notice to the other Party. The JDC may invite non-members to participate in the discussions and meetings of the JDC; provided, that such participants shall have no voting authority at the JDC and shall be bound by the confidentiality obligations no less stringent than those provided in this Agreement. The JDC shall have two (2) co-chairpersons, one from each Party. The role of the co-chairpersons shall be to convene and preside at meetings of such JDC. The Alliance Managers shall work with the co-chairpersons to prepare and circulate agendas and to ensure the preparation of minutes. The co-chairpersons shall have no additional powers or rights beyond those held by the other JDC representatives.

2.7.2 **Specific Responsibilities of the JDC**. The JDC shall have the following responsibilities:

(a) discuss, prepare and submit to the JSC for approval of the Development Plan and Development Budget and all annual and interim amendments to the Development Plan and Development Budget. For clarity, (i) Metagenomi will be responsible for preparing any regional Development Plans and regional Development Budget in the U.S. and (ii) Moderna will be responsible for preparing any regional Development Plans and regional Development Budget in all countries in the Territory other than the U.S. Such regional Development Plans are to be part of the Development Plan and Development Budget and thereby subject to comments and proposed changes by the other Party and approval by the JSC as part of the global Development Plan;

(b) oversee the conduct of the Development Plan;

(c) create, implement and review the overall strategy for Development and the design of all Clinical Trials, and Nonclinical Studies conducted under the Development Plan;

(d) oversee the conduct of a Working Group created by the JSC related to regulatory activities in the Territory ("**Regulatory Working Group**") in accordance with Section 6.5 (Regulatory Affairs), which shall consist of equal representatives from each Party;

(e) oversee the conduct of a Working Group created by the JSC related to Medical Affairs activities in the Territory ("**Medical Affairs Working Group**") in accordance with Section 6.6 (Medical Affairs), which shall consist of equal representatives from each Party;.

(f) decide whether and when to initiate or discontinue any Clinical Trial and any Nonclinical Study under the Development Plan, and initiate or discontinue any Clinical Trial and any Nonclinical Study; provided, that nothing is intended to limit a Party's ability to comply with Applicable Laws or manage subject safety;

(g) allocate budgeted resources and determine priorities for each Clinical Trial and Nonclinical Study under the Development Plan, and oversee the conduct of all Clinical Trials and Nonclinical Studies under the Development Plan;

(h) discuss and coordinate roles and responsibilities between the Parties for Development activities in the Territory;

(i) facilitate the flow of information between the Parties with respect to the Development of a DT Co-Co Product, including any Manufacturing updates related to clinical supply;

(j) review the overall strategy regarding Regulatory Approval of a DT Co-Co Product in the Territory;

(k) discuss, review and oversee the conduct of any Clinical Trials in the Territory that may be included in a Development Plan;

(l) review and approve terms (other than those set forth in Sections 3.6 (Subcontractors for the RT Plans) and 4.7 (Subcontractors for the DT Plans)) between a Party and a Third Party subcontractor with respect to any Development work to be conducted by such subcontractor; and

(m) perform such other functions as directed by the JSC in accordance with Section 2.4.12 (Specific Responsibilities of the JSC).

2.8 **Joint Commercialization Committee**.

2.8.1 **Formation**. No later than twelve (12) months prior to the anticipated first NDA or BLA filing, as applicable, for the first DT Co-Co Product in the Territory, the Parties shall establish the JCC to oversee and manage the Commercialization with respect to such DT Co-Co Product.

2.8.2 **Composition**. Each Party shall initially appoint three (3) representatives to the JCC, with each representative having knowledge and expertise working with products similar to the DT Co-Co Products, and having sufficient seniority within the applicable Party to make decisions arising within the scope of the JCC's responsibilities. The JCC may change its size from time to time by mutual consent of its members; provided, that the JCC shall consist at all times of an equal number of representatives of each of Metagenomi and Moderna. Each Party may replace any of its JCC representatives with a qualified employee of such Party at any time upon written notice to the other Party. The JCC may invite non-members to participate in the discussions and meetings of the JCC; provided that such participants shall have no voting authority at the JCC and shall be bound by the confidentiality obligations no less stringent than those provided in this Agreement. The JCC shall have two (2) co-chairpersons, one from each Party. The role of the chairpersons shall be to convene and preside at meetings of the JCC and to ensure the preparation of minutes, but the chairpersons shall have no additional powers or rights beyond those held by the other JCC representatives.

2.8.3 **Specific Responsibilities of the JCC**. The JCC shall have the following responsibilities:

(a) discuss, prepare and submit to the JSC for approval of the Commercialization Plan (including Commercialization Budget) and all annual and interim amendments to such Commercialization Plan (including Commercialization Budget). For clarity, (i) Metagenomi will be responsible for preparing any regional Commercialization Plan and regional Commercialization Budget in the U.S. and (ii) Moderna will be responsible for any regional Commercialization Plan and regional Commercialization Budget in all countries in the Territory other than the U.S. Such regional Commercialization Plans are to be part of the Commercialization Plan and Commercialization Budget and thereby subject to comments and proposed changes by the other Party and approval by the JSC as part of the global Commercialization Plan;

(b) monitor and discuss Commercialization of DT Co-Co Products in the Territory, including Distribution Matters;

(c) discuss, review and approve changes to the Parties' Commercialization responsibilities, including re-allocating and potentially shifting (based on mutual agreement of both Parties and not subject to escalation) responsibilities between the Parties in relation to each Party's capabilities in a given aspect of Commercialization;

(d) establish policies and procedures and a joint promotional review Working Group, for review and approval of any promotional materials for any DT Co-Co Product in the Territory, including with respect to the resolution of any disagreement between the Parties at the joint promotional review working;

(e) discuss, review and approve the use of Product Marks in any packages and labels for a DT Co-Co Product;

(f) discuss, review and approve Pricing Matters in the Territory in accordance with the Commercialization Plan;

(g) review and approve terms (other than those set forth in Sections 3.6 (Subcontractors for the RT Plans) and 4.7 (Subcontractors for the DT Plans)) between a Party and a Third Party subcontractor with respect to any Commercialization work to be conducted by such subcontractor; and

(h) perform such other functions as directed by the JSC in accordance with Section 2.4.12 (Specific Responsibilities of the JSC).

2.9 **Joint Patent Committee**. The JSC shall establish the JPC, consisting of one (1) subject matter expert from each Party or such other number as the JSC may agree upon (with an equal number of experts from each of Moderna and Metagenomi), within five (5) days after the establishment of the JSC. The JPC shall be responsible for evaluating technology arising during the applicable Research Term under this Agreement, including (a) making initial determination of inventorship, (b) determining whether such technology is Metagenomi Program Technology or Moderna Program Technology (including whether certain technologies can be separately categorized and separately patentable and subject to separate assignment and license obligations hereunder), and (c) coordination of the Parties with respect to managing the preparation, filing, prosecution, maintenance, enforcement and defense of Joint IP (and determining whether any such Joint IP should be maintained as trade secret in lieu of patenting), including in accordance with the provisions set forth in Article 8 (Intellectual Property); provided that disputes at the JPC with respect to Patent strategy with respect to Article 8 (Intellectual Property) shall be resolved in accordance with Article 8 (Intellectual Property) and shall not be escalated to the JSC.

2.10 **Decisions**.

2.10.1 **Decision-making Generally**. The JSC, subcommittees, including the JRC, JDC, JCC and JPC, and Working Groups shall endeavor to make decisions by consensus, with the representatives of each Party having, collectively, one (1) vote on behalf of that Party (which vote shall, with respect to the JSC, be exercised by the respective JSC Co-Chairs). Unless expressly provided for herein, JSC decisions shall not be subject to a tie-breaking vote. Deadlocks in the case of subcommittees and Working Groups (except, for clarity, deadlocks at the JPC with respect to Patent strategy under Article 8 (Intellectual Property), which shall be resolved in accordance with Article 8 (Intellectual Property)) shall be referred to the JSC for final disposition. If the JSC cannot reach consensus or a dispute arises that cannot be resolved within the JSC, either Party may refer such dispute to the Executive Officers for discussion and attempted resolution in good faith. If consensus cannot be reached with respect to a decision within thirty (30) days after attempted resolution by the Executive Officers, then, subject to Section 2.10.2 (Decision-making for DT CoCo Plans): (a) Moderna has the deciding vote with respect to [***]; provided that Moderna shall not resolve any such matter under the foregoing clause (a) in a manner that would [***].

2.10.2 **Decision-making for DT Co-Co Plans**. All matters within the purview of the JSC with respect to the DT Co-Co Plans shall be decided by consensus, with no tie-breaking vote, and any failure to reach consensus shall be resolved in accordance with Section 13.4 (Baseball Arbitration) with the goal of advancing the DT Co-Co Program in an expedited fashion, provided that:

(a) Moderna shall have the deciding vote on [***]; and

(b) Metagenomi shall have the deciding vote on all matters related to the application of Metagenomi Licensed DT Co-Co Technology to Metagenomi's activities under the DT Co-Co Plans.

2.10.3 **Disputes for Achievement of Milestones**. If the JSC is unable to reach consensus on whether [***] Milestone or [***] Milestone has been achieved, and if Moderna exercises its decision-making right pursuant to [***] then at the request of Metagenomi such dispute shall be resolved in accordance with Section 13.4 (Baseball Arbitration) provided that Metagenomi shall only have the right to request arbitration one (1) time for achievement of each [***] Milestone.

2.11 **Authority**. The JSC, the JSC Co-Chairs and each subcommittee have only the powers assigned expressly to them in this Article 2 (Governance and Joint Steering Committee) and elsewhere in this Agreement, and does not have any power to amend, modify or waive compliance with this Agreement. Each Party retains the rights, powers and discretion granted to it under this Agreement and neither Party may delegate or vest such rights, powers or discretion in the JSC or subcommittee unless expressly provided for in this Agreement or the Parties expressly so agree in writing. The JSC shall not have the power to amend, waive or modify any term of this Agreement, and no decision of the JSC shall be in contravention of any terms and conditions of this Agreement. It is understood and agreed that issues to be formally decided by the JSC are limited to those specific issues that are expressly provided in this Agreement to be decided by the JSC.

2.12 **Discontinuation of JSC**. The JSC will continue, on a Program-by-Program basis, until the expiration or termination of the Research Term for such Program. Upon disbanding of the JSC with respect to a Program, any subcommittees and Working Groups with respect to such Program shall be promptly disbanded with immediate effect (unless the Parties otherwise mutually agree).

Article 3
RT RESEARCH ACTIVITIES AND OPTION

3.1 **Goals**. The objectives for the RT Research Term are for the Parties: (i) to discover and advance Gene Editing technology within the RT Field to meet the RT Technology Milestones (the "**RT Technology Research Program**"); and (ii) to discover and advance Licensed Product candidates within the RT Field (each, a "**RT Candidate**") Directed Against specific RT Targets identified in the RT Preclinical Research Plans in order to permit Moderna to evaluate whether to exercise the RT Option with respect to any such RT Target (with respect to each specific RT Target, an "**RT Preclinical Research Program**"; together with the RT Technology Research Program, the "**RT Programs**"). Notwithstanding anything to the contrary herein, the Parties may also perform Research under the RT Technology Research Program involving specific targets.

3.2 **RT Technology Research Plan**. During the RT Research Term, the Research activities in the RT Technology Research Program shall follow a research plan and budget detailing principal objectives and the activities to be undertaken by both Parties, which includes: (a) the responsibilities of the Parties, and (b) a timeline showing the key activities and timeframes in which such activities are expected to be completed (the "**RT Technology Research Plan**"). The initial RT Technology Research Plan appended in **Schedule L** (RT Technology Research Plan) shall be presented by the Parties to the JSC for approval within thirty (30) days after the Effective Date. Moderna shall have the right to modify or amend the RT Technology Research Plan, provided that any modifications or amendments to the RT Technology Research Plan shall be subject to review by the JRC and approval by the JSC. The RT Technology Research Plan shall provide for achieving the [***] milestone.

3.3 **RT Preclinical Research Plan**. At any time during the RT Research Term, Moderna may initiate one or more RT Preclinical Research Programs by written notice to Metagenomi. Upon receiving such a written notice, the Parties shall jointly propose a research and development plan and budget detailing principal objectives and the activities to be undertaken by both Parties in the RT Preclinical Research Program(s), which includes: (a) the responsibilities of the Parties, and (b) a timeline showing the key activities and timeframes in which such activities are expected to be completed (each, an "**RT Preclinical Research Plan**"; together with the RT Technology Research Plan, the "**RT Plans**"). The initial RT Preclinical Research Plan shall be reviewed by the JRC and approved by the JSC. Moderna shall have the right to modify or amend the RT Preclinical Research Plan, provided that any modifications or amendments to the RT Preclinical Research Plan shall be subject to review by the JRC and approval by the JSC. Moderna shall use Commercially Reasonable Efforts to identify potential programs in the RT Field and to establish RT Plans for such programs.

3.4 **Obligations During the RT Research Term**. Each Party shall use Commercially Reasonable Efforts to perform and complete (itself or through its Affiliates or by permitted subcontracting) its obligations under the RT Plans. Neither Party shall be required to perform any work which is not contemplated by any RT Plan, unless such additional work is reflected in a mutually agreed amendment to the applicable RT Plan. Without limiting the generality of the foregoing, on an RT Preclinical Research Program-by-RT Preclinical Research Program basis, each Party shall use Commercially Reasonable Efforts to perform and complete its activities under the applicable RT Preclinical Research Plan.

3.5 **RT Research Term Costs**. Metagenomi's Research Costs incurred under the RT Technology Research Plan and any RT Preclinical Research Plan shall, on an annual basis, first be credited against the Annual Research Funding Amounts. Upon fully consuming the Annual Research Funding Amount for any given year by Metagenomi's Research Costs (which, for the avoidance of doubt, include Research Costs incurred under the DT Plans), Moderna shall pay Metagenomi for Metagenomi's Research Costs incurred under the RT Plans which are not covered by the Annual Research Funding Amount (the "**RT Excess Costs**") so long as the aggregate Research Costs incurred by Metagenomi in the RT Programs do not exceed the aggregate budgets therefor set forth in the RT Plans (the "**RT Research Budgets**"), provided *that* Moderna's obligation to compensate Metagenomi for RT Excess Costs shall be subject to Metagenomi's obligation to provide reports describing all of Metagenomi's Research Costs incurred under the RT Technology Research Plan and any RT Preclinical Research Plan, including any RT Excess Costs. Within [***] after the end of each Calendar Quarter, Metagenomi shall send such a report to Moderna describing all of Metagenomi's Research Costs incurred under the RT Technology Research Plan and any RT Preclinical Research Plan, including any RT Excess Costs, for such Calendar Quarter. Moderna may reasonably request additional supporting documentation for Metagenomi's Research Costs described in such reports and Metagenomi shall provide such documentation (e.g. out-of-pocket cost breakdowns and general allocation of FTEs). No later than [***] after receipt of any such invoice from Metagenomi, Moderna shall make payment of undisputed amounts for the RT Excess Costs for such Calendar Quarter. Reimbursement of any RT Excess Costs in excess of the RT Research Budgets shall be subject to approval by the JSC. Metagenomi shall use the Annual Research Funding Amounts it receives from Moderna under this Agreement solely to carry out its activities in the RT Technology Research Program, the RT Preclinical Research Programs, the DT Target Evaluation Program, and the DT Moderna Research Programs in accordance with the applicable Program Plans therefor and the terms and conditions of this Agreement and for no other purposes.

3.6 **Subcontractors for the RT Plans**. Subject to the remainder of this Section 3.6 (Subcontractors for the RT Plans), each Party may engage subcontractors to perform its obligations under the applicable RT Plan. In all cases, such Party shall ensure that (a) it remains responsible for the work allocated to such subcontractors to the same extent it would if it had done such work itself, (b) the subcontractor undertakes in writing obligations of confidentiality and non-use regarding Confidential Information that are at least as protective as those undertaken by such Party with respect to Confidential Information pursuant to Article 11 (Confidentiality), and (c) the subcontractor undertakes in writing to assign or exclusively license back (with the right to sublicense through multiple tiers) all intellectual property with respect to all Results and all other intellectual property arising out of such subcontracted activities, in each case in the course of performing any such work under the applicable RT Plan to such Party such that such Party shall Control such intellectual property. Without limiting the generality of the foregoing, each Party may subcontract any of its obligations under the applicable RT Plan to a university or academic institution on reasonable and customary terms, provided that, (a) such Party shall use reasonable efforts to ensure that such subcontracting relationship is consistent with, and such university or academic institution abides by, the terms and obligations set forth in this Section 3.6 (Subcontractors for the RT Plans) (or such revisions to such terms or obligations as the Parties may mutually agree) and (b) neither the U.S. government nor any agency thereof has funded or will fund any part of such subcontracting relationship. The engagement of any subcontractor in compliance with this Section 3.6 (Subcontractors for the RT Plans) shall not relieve either Party of its obligations under the applicable RT Plan or this Agreement.

3.7 **Records and Reports**.

3.7.1 **Records**. Metagenomi and Moderna shall maintain, or cause to be maintained, during the RT Research Term and for a reasonable period of time thereafter that is consistent with industry standards, complete and accurate written (or electronic) records of its activities under each RT Plan in sufficient detail and in a good scientific manner appropriate for scientific, patent and regulatory purposes, which records shall reasonably reflect all work performed by or on behalf of such Party under the applicable RT Plan (the "**RT Records**"). Moderna may request a copy of any RT Records of Metagenomi.

3.7.2 **Reports**. Metagenomi and Moderna shall report on a Calendar Quarter basis to the other Party through the JRC its Results in conducting activities under the RT Plans (the "**RT Results**"). In addition, for each RT Program, each Party shall provide the JRC with, on a Calendar Quarter basis during the RT Research Term, all RT Results generated by or on behalf of such Party in performance of its activities under the applicable RT Plan.

3.7.3 **Ownership; Confidentiality**. Each Party shall own all rights, title and interest (including all intellectual property rights) in and to the RT Results and the RT Records generated by or for it in accordance with Section 8.1.2 (Ownership of Intellectual Property). The RT Results and RT Records constitute Confidential Information and shall in each case be subject to the rights and obligations of the Parties under this Agreement, including Article 11 (Confidentiality) and the licenses granted hereunder.

3.8 **RT Research Term Extension**. Notwithstanding anything to the contrary, Moderna may, in its sole discretion, extend the RT Research Term by one (1) year for up to three (3) separate times each upon (i) written notice to Metagenomi provided at least [***] prior to the expiration of the existing RT Research Term and (ii) payment of the applicable RT Research Term Extension Fee. If Moderna desires that Metagenomi conduct additional Research activities within the RT Field after the expiration of the RT Research Term and Metagenomi agrees to conduct such additional activities, the Parties shall negotiate in good faith the terms and conditions of Metagenomi's conduct of such additional activities.

3.9 **RT Option**. On an RT Preclinical Research Program-by-RT Preclinical Research Program basis, Metagenomi hereby grants to Moderna the right, but not the obligation, to exercise an exclusive option, exercisable at any time during the Term but [***] (the "**RT Option Period**"), to obtain the licenses set forth in Section 5.13 (License to Moderna Upon Exercise of the RT Option) with respect to such RT Preclinical Research Program (the "**RT Option**"). Moderna may exercise the RT Option up to ten (10) times, each with respect to an RT Target under an RT Preclinical Research Program at its own choosing in its sole discretion. No later than thirty (30) days after the beginning of the RT Option Period for each RT Preclinical Research Program, Metagenomi shall (a) provide to Moderna the Data Package for such RT Preclinical Research Program, and (b) afford reasonable access during normal business hours to Metagenomi's personnel by Moderna and its representatives as Moderna may reasonably request to assist Moderna in deciding whether to exercise the RT Option. Moderna may exercise the RT Option with respect to an RT Preclinical Research Program by delivering an RT Option exercise notice in respect of such RT Option to Metagenomi at any time during the Term prior to the expiration of the applicable RT Option Period for such RT Preclinical Research Program (the date of such delivery, the "**RT Option Exercise Date**"). The RT Option exercise notice shall include the RT Target that is the subject of such RT Option, to be designated as follows: (i) an election of a set of up to [***] genes that are reasonably known or hypothesized in the scientific arts (A) [***]. Within [***] after the RT Option Exercise Date, Moderna shall pay the RT Option Fee for such RT Preclinical Research Program to Metagenomi. For clarity, on an RT Preclinical Research Program-by-RT Preclinical Research Program basis, after Moderna exercises its RT Option with respect to such RT Preclinical Research Program, Moderna shall be solely responsible and have sole authority for all Development (including IND Filing), Manufacturing and Commercialization of all Licensed RT Products for such RT Preclinical Research Program, and Moderna shall use Commercially Reasonable Efforts to Develop and Commercialize one or more Licensed RT Products for each such RT Preclinical Research Program. For the avoidance of doubt, Moderna may exercise the RT Option with respect to such RT Preclinical Research Program during the RT Option Period, regardless of whether the applicable RT Preclinical Research Plan has been put in place and whether activities under the applicable RT Preclinical Research Plan have been completed or carried out at all. If Moderna does not exercise the RT Option during the RT Option Period, then Metagenomi shall have no further obligation to Moderna with respect to such RT Preclinical Research Program.

3.10 **Metagenomi BEC Programs**.

3.10.1 Starting [***] after the Effective Date and during the Initial RT Research Term, Metagenomi may from time to time propose to the JSC in writing an RT Target for use in the RT Field, if such RT Target is not already included in an ongoing RT Preclinical Research Program, for which Metagenomi wishes to initiate a research program to discover and advance candidates Directed Against such RT Target in the RT Field through BEC (each such research

program, a, "**Metagenomi BEC Program**" and such candidates, the "**BEC Candidates**") along with written justification of why such RT Target is amenable to a BEC approach in the RT Field, in sufficient detail for the JSC to assess the feasibility and prospect of applying BEC in the RT Field on such RT Target. If, within [***] days after the JSC's receipt of the written proposal and justification, Moderna (a) has not provided written notice to Metagenomi to initiate an RT Preclinical Research Program for such RT Target in the RT Field or (b) has provided Metagenomi with written notice that it does not have an intent to do so, Metagenomi may initiate such Metagenomi BEC Program at its own cost and expense, provided that Metagenomi may not initiate more than [***] Metagenomi BEC Programs during each Calendar Year during the Initial Research Term. Metagenomi will periodically (through the JSC) thereafter provide information about the status and activities of such Metagenomi BEC Program promptly upon (and in any event within [***] after) Moderna's reasonable request, in sufficient detail to allow Moderna to assess the status and to review the activities of such Metagenomi BEC Program.

3.10.2 Subject to the remainder of this Section 3.10.2 (Metagenomi BEC Programs), Metagenomi may engage subcontractors to perform its activities in the Metagenomi BEC Programs. In all cases, Metagenomi shall ensure that (a) it remains responsible for the work allocated to such subcontractors to the same extent it would if it had done such work itself, (b) the subcontractor undertakes in writing obligations of confidentiality and non-use regarding Confidential Information that are at least as protective as those undertaken by Metagenomi with respect to Confidential Information pursuant to Article 11 (Confidentiality), and (c) the subcontractor undertakes in writing to assign or exclusively license back (with the right to sublicense through multiple tiers) all intellectual property with respect to all data (including raw data that has not undergone any processing, either manually or through automated computer software, processed, distilled, analyzed or summarized data, and all representations of part or all of the data), results, findings, analyses and observations, and all other intellectual property arising out of such subcontracted activities, in each case in the course of performing any such work in the applicable Metagenomi BEC Programs such that Metagenomi shall Control such intellectual property. Except as expressly set forth in this Section 3.10, (Metagenomi BEC Programs) Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option, covenant not to sue, or other like right thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit any candidate or product in connection with the application of BEC in the RT Field during the Initial RT Research Term.

3.10.3 Moderna may at any time during the Initial RT Research Program initiate an RT Preclinical Research Program for an RT Target which is also the subject of a Metagenomi BEC Program by written notice to Metagenomi, and within [***] days after receiving such written notice, (a) Metagenomi will cooperate with Moderna to transfer the activities of such Metagenomi BEC Program to such RT Preclinical Research Program, (b) the Parties shall jointly propose an RT Preclinical Research Plan for such RT Preclinical Research Program, taking into account the activities that have been conducted in such Metagenomi BEC Program, and (c) Moderna shall pay to Metagenomi an amount equal to Metagenomi's costs incurred to date in such Metagenomi BEC Program that is transferred to Moderna upon the earlier of (i) the Base Editing system generated under such Metagenomi BEC Program achieving during the Initial RT Research Term the Base Editing Correction Readiness milestone for the RT Target of such Metagenomi BEC Program or (ii) Moderna exercises the RT Option with respect to such RT Preclinical Research Program;

provided that such payment under this clause (c) by Moderna may also be made by crediting any unused amounts from the Annual Research Funding Amount and shall not exceed [***]. From and after the end of the thirty (30)-day period, the Parties' rights and obligations with respect to RT Preclinical Research Programs under this Agreement (including, without limitation, those under Sections 3.4 (Obligations During the RT Research Term) through 3.9 (RT Option) and the applicable licenses granted under Article 5 (Licenses; Exclusivity; Manufacture)) shall apply to such RT Preclinical Research Program.

3.10.4 During the Initial RT Research Term, Metagenomi will notify Moderna in writing no later than [***] days prior to the anticipated GLP Tox Commitment Date of any Metagenomi BEC Program of the upcoming GLP Tox Commitment Date, together with a full data package for the Metagenomi BEC Program, with sufficient data (e.g., results, data (including raw data and summaries thereof), conclusions and findings), consistent with industry standard, for purposes of demonstrating achievement of indicated success criteria for GLP Toxicology Study, for Moderna to review.

(a) If within [***] of receiving such notice and data package, Moderna has not provided written notice to Metagenomi of Moderna's intention to initiate an RT Preclinical Research Program for the RT Target that is also the subject of such Metagenomi BEC Program, (i) Metagenomi is free to pursue such Metagenomi BEC Program without any further obligation to Moderna under this Agreement and the applicable RT Target in such Metagenomi BEC Program with respect to BEC, and (ii) the RT Target in such Metagenomi BEC Program shall remain available to Moderna for purposes of initiating an RT Preclinical Research Program, provided, however, such RT Preclinical Research Program directed to such RT Target shall not include BEC.

(b) If within [***] of receiving such notice and data package, Moderna provides a written notice to Metagenomi of Moderna's intention to initiate an RT Preclinical Research Program for the RT Target that is also the subject of such Metagenomi BEC Program, (i) Metagenomi will cooperate with Moderna to transfer the activities of such Metagenomi BEC Program to the newly established RT Preclinical Research Program, (ii) the Parties shall jointly propose an RT Preclinical Research Plan for such RT Preclinical Research Program, taking into account the activities that have been conducted in such Metagenomi BEC Program, and (iii) Moderna shall pay to Metagenomi an amount equal to Metagenomi's costs incurred to date in such Metagenomi BEC Program that is transferred to Moderna upon the earlier of (A) the Base Editing system generated under such Metagenomi BEC Program during the Initial RT Research Term achieving the [***] milestone for the RT Target of such Metagenomi BEC Program or (B) Moderna exercises the RT Option with respect to such RT Preclinical Research Program; provided that such payment under this clause (iii) by Moderna may also be made by crediting any unused amounts from the Annual Research Funding Amount and shall not exceed [***]. From and after the end of the [***] period, the Parties' rights and obligations with respect to RT Preclinical Research Programs under this Agreement (including, without limitation, those under Sections 3.4 (Obligations During the RT Research Term) through 3.9 (RT Option) and the applicable licenses granted under Article 5 (Licenses; Exclusivity; Manufacture)) shall apply to such RT Preclinical Research Program.

3.10.5 For clarity, Moderna is not obligated to provide any funding to Metagenomi or its Affiliates in connection with the Metagenomi BEC Programs, and Metagenomi and its Affiliates shall not use any Annual Research Funding Amounts (or any portion thereof) or any other funding provided by Moderna under this Agreement in connection with the Metagenomi BEC Programs. Moderna and its Affiliates are not obligated to grant, and do not and shall not grant, Metagenomi or its Affiliates any license under any intellectual property, or otherwise provide to Metagenomi or its Affiliates any technology (including, without limitation, any mRNA-LNP Technology), in each case in connection with the Metagenomi BEC Programs.

3.10.6 For clarity, after the end of the Initial RT Research Term, Metagenomi is free to pursue BEC in the RT Field without any further obligation to Moderna with respect to BEC in the RT Field under this Agreement except in relation to any RT Options exercised before the expiration of the applicable RT Option Period.

Article 4
MODERNA DT RESEARCH ACTIVITIES AND OPTION

4.1 **Reserved DT Target Discontinuance**. Within [***] after the earlier of (i) [***] after achieving Base Editing Knockout Readiness or (ii) the [***] anniversary of the Effective Date, but in no event earlier than the [***] of the Effective Date (the "**DT Reduction Date**"), in the event the number of Reserved DT Targets remaining as of the DT Reduction Date is greater than [***], Moderna shall reduce the number of Reserved DT Targets remaining to [***] by selecting, at its own choosing, the appropriate number of targets from among the remaining [***] for exclusion from the [***]. Notwithstanding the foregoing, within [***], in the event the number of Reserved DT Targets remaining as of the [***] of the Effective Date is greater than [***] Moderna shall reduce the number of Reserved DT Targets remaining to [***] by selecting, at its own choosing, the appropriate number of targets from among the remaining Reserved DT [***] for exclusion from the Reserved DT Targets. Within [***] after the [***] of the Effective Date, in the event the number of Reserved DT Targets remaining as of the [***] of the Effective Date is greater than [***], Moderna shall reduce the number of Reserved DT Targets remaining to [***] by selecting, at its own choosing, the appropriate number of targets from among the remaining Reserved DT Targets for exclusion from the Reserved DT Targets. Any Reserved DT Target selected by Moderna for exclusion from the Reserved DT Targets pursuant to this Section 4.1 (Reserved DT Target Discontinuance) shall, from and after such selection, be referred to as a "**Discontinued Target**" and cease to be a Reserved DT Target. In the event such Reserved DT Target is the subject of an ongoing DT Moderna Research Program at the time Moderna selects it for exclusion, the DT Moderna Research Program is deemed to have been terminated by Moderna pursuant to Section 12.4 (Termination for Convenience by Moderna), and such Reserved DT Target shall cease to be a DT Moderna Target, in each case as of the date of such selection.

4.2 **Right of First Negotiation**.

4.2.1 If, (a) at any time prior to the earlier of (i) [***] after achieving Base Editing Knockout Readiness or (ii) the [***] of the Effective Date, Metagenomi or any of its Affiliates wishes to grant any Third Party any rights related to the target [***] within the DT Field in the Territory, (b) at any time prior to the earlier of (i) [***] after achieving Base Editing Knockout Readiness or (ii) the [***] of the Effective Date, Metagenomi or any of its Affiliates wishes to grant any Third Party any rights related to the target [***] within the DT Field in the Territory, or (c) at any time prior to the [***] of the Effective Date, Metagenomi or any of its Affiliates wishes

to grant any Third Party any rights related to [***] (each time period in (a), (b) or (c), a "**ROFN Period**"), Metagenomi shall provide Moderna with written notice thereof, which notice shall identify the rights Metagenomi or its applicable Affiliate wishes to grant, and the applicable countries or regions of the Territory to which the applicable grant of rights would apply, together with such information and data in Metagenomi's or its applicable Affiliate's Control that would be reasonably useful for Moderna to determine wither to exercise its right under this Section 4.2.1 (Right of First Negotiation) (the "**ROFN Notice**"). Moderna shall have a right of first negotiation on the terms and conditions set forth in this Section 4.2.1 (Right of First Negotiation). In the event Moderna wishes to exercise its right of first negotiation with respect to such target [***], as applicable, identified in the ROFN Notice, it shall do so in writing (the "**ROFN Exercise Notice**") no later than [***] after Moderna's receipt of the applicable ROFN Notice (the "**ROFN Exercise Period**"). Upon Metagenomi's receipt of the applicable ROFN Exercise Notice, Metagenomi and Moderna shall negotiate in good faith to attempt to reach agreement on the terms of a collaboration and license agreement for the target [***] as applicable, in the applicable countries or regions of the Territory similar to the terms related to DT Moderna Research Programs in this Agreement as if the target [***] as applicable, were a DT Moderna Target. If (A) the Parties do not enter into such collaboration and license agreement within [***] of Metagenomi's receipt of the applicable ROFN Exercise Notice (the "**ROFN Negotiation Period**"), (B) Moderna fails to respond during the applicable ROFN Exercise Period, or (C) Moderna notifies Metagenomi that it elects not to exercise such negotiation right, Metagenomi or its applicable Affiliate shall be free to seek to enter into an agreement granting rights to the target [***] as applicable, in the countries or regions in the Territory with the Third Party, each as identified in the applicable ROFN Notice; provided that in the event Metagenomi or its applicable Affiliate does not enter into such an agreement within [***] days from (x) in the case of clause (A), expiration of the applicable ROFN Negotiation Period, or (y) in the case of clauses (B) and (C), expiration of the applicable ROFN Exercise Period (or earlier delivery of notice by Moderna to Metagenomi that it elects not to exercise such negotiation right), Metagenomi shall thereafter be obligated to, prior to entering into any such agreement, resubmit the ROFN Notice and enter into good faith negotiations with Moderna regarding such rights as specified above in this Section 4.2.1 (Right of First Negotiation) at Moderna's request, so long as the applicable ROFN Period has not expired.

4.2.2 If, at any time within [***] after a Discontinued Target becomes a Discontinued Target (the "**Discontinued Target ROFN Period**"), Metagenomi or any of its Affiliates wishes to grant any Third Party any rights related to such Discontinued Target within the DT Field in the Territory, Metagenomi shall provide Moderna with written notice thereof, which notice shall identify the rights Metagenomi or its applicable Affiliate wishes to grant, and the applicable countries or regions of the Territory to which the applicable grant of rights would apply, together with such information and data in Metagenomi's or its applicable Affiliate's Control that would be reasonably useful for Moderna to determine wither to exercise its right under this Section 4.2.2 (Right of First Negotiation) (the "**Discontinued Target ROFN Notice**"). Moderna shall have a right of first negotiation on the terms and conditions set forth in this Section 4.2.2 (Right of First Negotiation). In the event Moderna wishes to exercise its right of first negotiation with respect to such Discontinued Target identified in the Discontinued Target ROFN Notice, it shall do so in writing (the "**Discontinued Target ROFN Exercise Notice**") no later than [***] after Moderna's receipt of the applicable Discontinued Target ROFN Notice (the "**Discontinued Target ROFN Exercise Period**"). Upon Metagenomi's receipt of the applicable Discontinued Target ROFN Exercise Notice, Metagenomi and Moderna shall negotiate in good

faith to attempt to reach agreement on the terms of a collaboration and license agreement for the Discontinued Target in the applicable countries or regions of the Territory similar to the terms related to DT Moderna Research Programs in this Agreement as if the Discontinued Target were a DT Moderna Target. If (A) the Parties do not enter into such collaboration and license agreement within [***] of Metagenomi's receipt of the applicable Discontinued Target ROFN Exercise Notice (the "**Discontinued Target ROFN Negotiation Period**"), (B) Moderna fails to respond during the applicable Discontinued Target ROFN Exercise Period, or (C) Moderna notifies Metagenomi that it elects not to exercise such negotiation right, Metagenomi or its applicable Affiliate shall be free to seek to enter into an agreement granting rights to the Discontinued Target in the countries or regions in the Territory with the Third Party, each as identified in the applicable Discontinued Target ROFN Notice; provided that in the event Metagenomi or its applicable Affiliate does not enter into such an agreement within [***] from (x) in the case of clause (A), expiration of the applicable Discontinued Target ROFN Negotiation Period, or (y) in the case of clauses (B) and (C), expiration of the applicable Discontinued Target ROFN Exercise Period (or earlier delivery of notice by Moderna to Metagenomi that it elects not to exercise such negotiation right), Metagenomi shall thereafter be obligated to, prior to entering into any such agreement, resubmit the Discontinued Target ROFN Notice and enter into good faith negotiations with Moderna regarding such rights as specified above in this Section 4.2.2 (Right of First Negotiation) at Moderna's request, so long as the applicable Discontinued Target ROFN Period has not expired.

4.3 **DT Target Evaluation Plan**. Within [***] after the Effective Date, the Parties shall promptly establish a research program to advance Base Editing technology towards achieving the Base Editing Knockout Readiness and to evaluate the Reserved DT Targets (the "**DT Target Evaluation Program**"). The Research activities in the DT Target Evaluation Program shall follow a research plan and budget detailing principal objectives and the activities to be undertaken by both Parties, which includes: (a) the responsibilities of the Parties, and (b) a timeline showing the key activities and timeframes in which such activities are expected to be completed (the "**DT Target Evaluation Plan**"). Moderna shall have the right to modify or amend the DT Target Evaluation Plan, provided that any modifications or amendments to the DT Target Evaluation Plan shall be subject to review by the JRC and approval by the JSC.

4.4 **DT Moderna Research Plan**. Upon written request by Moderna at any time during the DT Moderna Research Term, the Parties shall promptly establish a research program to discover and advance Licensed Product candidates within the DT Field (each, a "**DT Moderna Candidate**") Directed Against a Reserved DT Target selected by Moderna in its sole discretion in such written request (each Reserved DT Target so selected by Moderna, a "**DT Moderna Target**") in order to advance such DT Moderna Candidates to IND Filing (the "**DT Moderna Research Program**"; together with the DT Target Evaluation Program, the "**DT Programs**"). Notwithstanding the foregoing, upon the earlier of completion of the DT Target Evaluation Program or [***] after the Effective Date, the Parties shall establish DT Moderna Research Programs for each then-current Reserved DT Target. To facilitate the foregoing, the Parties shall jointly propose a research and development plan and budget detailing principal objectives and the activities to be undertaken by both Parties in such DT Moderna Research Program, which includes: (a) the responsibilities of the Parties, (b) a timeline showing the key activities and timeframes in which such activities are expected to be completed, and (c) the criteria for a [***] (the "**DT Moderna Research Plan**"; together with the DT Target Evaluation Plan, the "**DT Plans**"). The initial DT Moderna Research Plan shall be reviewed by the JRC and approved by the JSC. Moderna shall have the right to modify or amend the DT Moderna Research Plan, provided that any modifications or amendments to the DT Moderna Research Plan shall be subject to review by the JRC and approval by the JSC.

4.5 **Obligations During the DT Moderna Research Term**. Each Party shall use Commercially Reasonable Efforts to perform and complete (itself or through its Affiliates or by permitted subcontracting) its obligations under the DT Plans. Neither Party shall be required to perform any work which is not contemplated by any DT Plan, unless such additional work is reflected in a mutually agreed amendment to the applicable DT Plan. Without limiting the generality of the foregoing, on a DT Moderna Research Program-by-DT Moderna Research Program basis, each Party shall use Commercially Reasonable Efforts to perform and complete its activities under the DT Plans.

4.6 **DT Moderna Research Term Costs**. Metagenomi's Research Costs incurred under the DT Target Evaluation Plan and any DT Moderna Research Plan shall, on an annual basis, first be credited against the Annual Research Funding Amounts. Upon fully consuming the Annual Research Funding Amount for any given year by Metagenomi's Research Costs (which, for the avoidance of doubt, include Research Costs incurred under the RT Plans), Moderna shall pay Metagenomi for Metagenomi's Research Costs incurred under the DT Plans which are not covered by the Annual Research Funding Amount (the "**DT Moderna Excess Costs**") so long as the aggregate Research Costs incurred by Metagenomi in the DT Programs do not exceed the aggregate budgets therefor set forth in the DT Plans (the "**DT Moderna Research Budgets**"), provided *that* Moderna's obligation to compensate Metagenomi for DT Moderna Excess Costs shall be subject to Metagenomi's obligation to provide reports describing all of Metagenomi's Research Costs incurred under the DT Target Evaluation Plan and any DT Moderna Research Plan, including any DT Moderna Excess Costs. Within [***] after the end of each Calendar Quarter, Metagenomi shall send such a report to Moderna describing all of Metagenomi's Research Costs incurred under the DT Target Evaluation Plan and any DT Moderna Research Plan, including any DT Moderna Excess Costs, for such Calendar Quarter. Moderna may reasonably request additional supporting documentation for Metagenomi's Research Costs described in such reports and Metagenomi shall provide such documentation (e.g. out-of-pocket cost breakdowns and general allocation of FTEs). No later than [***] after receipt of any such invoice from Metagenomi, Moderna shall make payment of undisputed amounts for the DT Moderna Excess Costs for such Calendar Quarter. Reimbursement of any DT Moderna Excess Costs in excess of the DT Moderna Research Budgets shall be subject to approval by the JSC.

4.7 **Subcontractors for the DT Plans**. Subject to the remainder of this Section 4.7 (Subcontractors for the DT Plans), each Party may engage subcontractors to perform its obligations under the applicable DT Plan. In all cases, such Party shall ensure that (a) it remains responsible for the work allocated to such subcontractors to the same extent it would if it had done such work itself, (b) the subcontractor undertakes in writing obligations of confidentiality and non-use regarding Confidential Information that are at least as protective as those undertaken by such Party with respect to Confidential Information pursuant to Article 11 (Confidentiality), and (c) the subcontractor undertakes in writing to assign or exclusively license back (with the right to sublicense through multiple tiers) all intellectual property with respect to all Results and all other intellectual property arising out of such subcontracted activities, in each case in the course of performing any such work under the applicable DT Plan to such Party such that such Party shall

Control such intellectual property. Without limiting the generality of the foregoing, each Party may subcontract any of its obligations under the applicable DT Plan to a university or academic institution on reasonable and customary terms, provided *that*, (a) such Party shall use reasonable efforts to ensure that such subcontracting relationship is consistent with, and such university or academic institution abides by, the terms and obligations set forth in this Section 4.7 (Subcontractors for the DT Plans) (or such revisions to such terms or obligations as the Parties may mutually agree) and (b) neither the U.S. government nor any agency thereof has funded or will fund any part of such subcontracting relationship. The engagement of any subcontractor in compliance with this Section 4.7 (Subcontractors for the DT Plans) shall not relieve either Party of its obligations under the applicable DT Plan or this Agreement.

4.8 **Records and Reports**.

4.8.1 **Records**. Metagenomi and Moderna shall maintain, or cause to be maintained, during the DT Moderna Research Term and for a reasonable period of time thereafter that is consistent with industry standards, complete and accurate written (or electronic) records of its activities under each DT Plan in sufficient detail and in a good scientific manner appropriate for scientific, patent and regulatory purposes, which records shall reasonably reflect all work performed by or on behalf of such Party under the applicable DT Plan (the "**DT Moderna Records**"). Moderna may request a copy of any DT Moderna Records of Metagenomi.

4.8.2 **Reports**. Metagenomi and Moderna shall report on a Calendar Quarter basis to the other Party through the JRC its Results in conducting activities under the DT Plans (the "**DT Moderna Results**"). In addition, for each DT Program, each Party shall provide the JRC with, on a Calendar Quarter basis during the DT Moderna Research Term, all DT Moderna Results generated by or on behalf of such Party in performance of its activities under the applicable DT Plan.

4.8.3 **Ownership; Confidentiality**. Each Party shall own all rights, title and interest (including all intellectual property rights) in and to the DT Moderna Results and the DT Moderna Records generated by or for it in accordance with Section 8.1.2 (Ownership of Intellectual Property). The DT Moderna Results and DT Moderna Records constitute Confidential Information and shall in each case be subject to the rights and obligations of the Parties under this Agreement, including Article 11 (Confidentiality) and the licenses granted hereunder.

4.9 **DT Option**. On a DT Moderna Research Program-by-DT Moderna Research Program basis, in the event this Agreement has not expired or been terminated with respect to such DT Moderna Research Program, Metagenomi hereby grants to Moderna the right, but not the obligation, to exercise an exclusive option, exercisable at any time during the Term but no later than [***] (the "**DT Option Period**") to obtain the licenses set forth in Section 5.15 (License to Moderna Upon Exercise of the DT Option) with respect to such DT Moderna Research Program (the "**DT Option**"). Moderna may exercise the DT Option up to two (2) times for a total of two (2) DT Moderna Targets under this Agreement, each with respect to a DT Moderna Research Program at its own choosing in its sole discretion. No later than [***] after the beginning of the DT Option Period for each DT Moderna Research Program, Metagenomi shall (a) provide to Moderna the Data Package for such DT Moderna Research Program, and (b) afford reasonable access during normal business hours to Metagenomi's personnel by Moderna and its

representatives as Moderna may reasonably request to assist Moderna in deciding whether to exercise the DT Option. Moderna may exercise the DT Option with respect to a DT Moderna Research Program by delivering a DT Option exercise notice in respect of such DT Option to Metagenomi at any time during the Term prior to the expiration of the DT Option Period for such DT Moderna Research Program (the date of such delivery, the "**DT Option Exercise Date**"). Within [***] after the DT Option Exercise Date, Moderna shall pay the DT Option Fee for such DT Moderna Research Program to Metagenomi. For clarity, on a DT Moderna Research Program-by-DT Moderna Research Program basis, after Moderna exercises its DT Option with respect to such DT Moderna Research Program, Moderna shall be solely responsible and have sole authority for all Development (including IND Filing), Manufacturing and Commercialization of all Licensed DT Products for such DT Moderna Research Program, and Moderna shall use Commercially Reasonable Efforts to Develop and Commercialize one or more Licensed DT Products for each such DT Moderna Research Program. For the avoidance of doubt, Moderna may exercise the DT Option with respect to such DT Moderna Research Program during the DT Option Period, regardless of whether the applicable DT Moderna Research Plan has been put in place and whether the activities under the applicable DT Moderna Research Plan have been completed or carried out at all. If Moderna does not exercise the DT Option during the DT Option Period, then Metagenomi shall have no further obligation to Moderna with respect to such DT Moderna Research Program. Notwithstanding anything herein to the contrary, if Moderna exercises an RT Option and a DT Option with respect to the same target, then the DT Option Fee or the RT Option Fee, as applicable, for the later exercise shall be reduced by [***] and the two applicable Programs will be treated as one for purposes of Moderna's Commercially Reasonable Efforts obligations.

Article 5
LICENSES; EXCLUSIVITY; MANUFACTURE

5.1 **RT Research Term License**. On an RT Program-by-RT Program basis, each Party agrees to grant, and hereby grants, the other Party, during the RT Research Term, a nonexclusive license under such Party's Background Technology and RT Program Technology (including RT Results and RT Records generated by or for such Party in conducting activities under all RT Plans) (collectively, such Party's "**RT Research Licensed Technology**"), to carry out the other Party's activities under the RT Plan in such RT Program.

5.2 **RT Preclinical Research Technology Transfer**. On an RT Program-by-RT Program basis:

5.2.1 from time to time during the Term for such RT Program, each Party shall provide to the other Party such Party's RT Research Licensed Technology to be used based on the applicable RT Plan or as utilized under such RT Program in such Party's possession or Control but was not previously provided in form and by means to be mutually agreed by the Parties; and

5.2.2 during the Term for such RT Program, such Party shall reasonably cooperate with the other Party to facilitate the technology transfer of such Party's RT Research Licensed Technology to be used based on the applicable RT Plan or as utilized under such RT Program to the other Party. Such cooperation shall include providing the other Party with reasonable access by teleconference or in-person at such Party's facilities to appropriate personnel from such Party to provide the other Party with technical assistance and consultation in connection with the transfer of such Party's RT Research Licensed Technology for such RT Program.

Notwithstanding the foregoing provisions of this Section 5.2 (RT Preclinical Research Technology Transfer) or anything else herein to the contrary, Moderna's obligation to transfer its RT Research Licensed Technology to Metagenomi under this Section 5.2 (RT Preclinical Research Technology Transfer) shall be limited to the RT Research Licensed Technology that Moderna determines at its sole discretion is necessary or reasonably useful for Metagenomi to carry out its activities under the applicable RT Plan.

5.3 **DT Moderna Research Term License**. On a DT Program-by-DT Program basis, each Party agrees to grant, and hereby grants, the other Party, during the DT Moderna Research Term, a non-exclusive license under such Party's Background Technology and DT Program Technology (including DT Moderna Results and DT Moderna Records generated by or for such Party in conducting activities under all DT Plans) (collectively, such Party's "**DT Moderna Research Licensed Technology**"), to carry out the other Party's activities under the DT Plan in such DT Program.

5.4 **DT Moderna Research Term Technology Transfer**. On a DT Program-by-DT Program basis:

5.4.1 as soon as reasonably practicable but in any event no less than [***] after the initiation of such DT Program, each Party shall provide to the other Party with such Party's DT Moderna Research Licensed Technology to be used based on the applicable DT Plan or as utilized under such DT Program in such Party's possession or Control as of the Effective Date in form and by means to be mutually agreed by the Parties;

5.4.2 from time to time during the Term for such DT Program, such Party shall provide to the other Party such Party's DT Moderna Research Licensed Technology to be used based on the applicable DT Plan or as utilized under such DT Program in such Party's possession or Control but was not previously provided in form and by means to be mutually agreed by the Parties; and

5.4.3 during the Term for such DT Program, such Party shall reasonably cooperate with the other Party to facilitate the technology transfer of such Party's DT Moderna Research Licensed Technology for such DT Program to the other Party. Such cooperation shall include providing the other Party with reasonable access by teleconference or in-person at such Party's facilities to appropriate personnel from such Party to provide the other Party with technical assistance and consultation in connection with the transfer of such Party's DT Moderna Research Licensed Technology for such DT Program.

Notwithstanding the foregoing provisions of this Section 5.4 (DT Moderna Research Term Technology Transfer) or anything else herein to the contrary, Moderna's obligation to transfer its DT Moderna Research Licensed Technology to Metagenomi under this Section 5.4 (DT Moderna Research Term Technology Transfer) shall be limited to the DT Moderna Research Licensed Technology that Moderna determines in its sole discretion is necessary or reasonably useful for Metagenomi to carry out its activities under the applicable DT Plan.

5.5 **DT Co-Co Program License**. Metagenomi agrees to grant, and hereby grants, to Moderna, during the Term, a co-exclusive license (with Metagenomi and its Affiliates) under the Metagenomi Licensed DT Co-Co Technology, to Exploit all applications of the DT Co-Co Target in the DT Co-Co Program, including all DT Co-Co Candidates in such DT Co-Co Program, for any use in the DT Field in the Territory during the Term, provided that (i) Moderna shall only exercise such license to carry out its activities under the DT Co-Co Plans for such DT Co-Co Program; and (ii) Metagenomi shall only practice its rights under the co-exclusively licensed Metagenomi Licensed DT Co-Co Technology to carry out its activities under the DT Co-Co Plans for such DT Co-Co Program. Moderna agrees to grant, and hereby grants, to Metagenomi, during the Term, a license under the Moderna Licensed DT Co-Co Technology, to carry out Metagenomi's activities under the DT Co-Co Plans for the DT Co-Co Program. Such license shall be non-exclusive prior to DC Nomination and co-exclusive (with Moderna and its Affiliates) after DC Nomination with respect to the DT Co-Co Product nominated in such DC Nomination, and shall not include the right to Manufacture or have Manufactured the DT Co-Co Product other than the rights of Moderna set forth in Section 5.23 (Manufacture).

5.6 **DT Co-Co Research Technology Transfer**. With respect to the DT Co-Co Program:

5.6.1 as soon as reasonably practicable but in any event no less than thirty (30) days after the Effective Date, each Party shall provide to the other Party with such Party's Licensed DT Co-Co Technology for such DT Co-Co Program in such Party's possession or Control as of the Effective Date in form and by means to be mutually agreed by the Parties;

5.6.2 from time to time during the Term, such Party shall provide to the other Party such Party's Licensed DT Co-Co Technology for such DT Co-Co Program in such Party's possession or Control but was not previously provided in form and by means to be mutually agreed by the Parties; and

5.6.3 during the Term, such Party shall reasonably cooperate with the other Party to facilitate the technology transfer of such Party's Licensed DT Co-Co Technology for such DT Co-Co Program to the other Party. Such cooperation shall include providing the other Party with reasonable access by teleconference or in-person at such Party's facilities to appropriate personnel from such Party to provide the other Party with technical assistance and consultation in connection with the transfer of such Party's Licensed DT Co-Co Technology for such DT Co-Co Program.

Notwithstanding the foregoing provisions of this Section 5.6 (DT Co-Co Research Technology Transfer) or anything else herein to the contrary, (a) Moderna's obligation to transfer its Licensed DT Co-Co Technology to Metagenomi under this Section 5.6 (DT Co-Co Research Technology Transfer) shall be limited to its Licensed DT Co-Co Technology that Moderna determines in its sole discretion is necessary or reasonably useful for Metagenomi to carry out its activities under the applicable DT Co-Co Plans, and (b) Metagenomi's obligation to transfer its Licensed DT Co-Co Technology to Moderna under this Section 5.6 (DT Co-Co Research Technology Transfer) shall be limited to its Licensed DT Co-Co Technology that Metagenomi determines in its sole discretion is necessary or reasonably useful for Moderna to carry out its activities under the applicable DT Co-Co Plans, provided, however, notwithstanding anything herein to the contrary, (i) in the event of an Opt-Out by Metagenomi pursuant to Section 6.8 (Opt-Out Right), the

foregoing clause (b) shall no longer apply with respect to the DT Co-Co Program from which Metagenomi has exercised the Opt-Out Right, and Metagenomi shall transfer or otherwise provide all of its Licensed DT Co-Co Technology to Moderna in accordance with Sections 5.6.2 (DT Co-Co Research Technology Transfer), 5.6.3 (DT Co-Co Research Technology Transfer), and 5.17 (Metagenomi Licensed Collaboration Technology Update); and (ii) in the event of an Opt-Out by Moderna pursuant to Section 6.8.1 (Opt-Out Right) prior to DC Nomination in such DT Co-Co Program, the foregoing clause (a) shall continue to apply but the scope of the Moderna Licensed DT Co-Co Technology under this Section 5.6 (DT Co-Co Research Technology Transfer) shall be expanded to additionally include Moderna's DT Moderna Research Licensed Technology being Exploited by Moderna as of the expiration of the Initial DT Co-Co Research Term. Notwithstanding the foregoing provisions of this Section 5.6.3 (DT Co-Co Research Technology Transfer) or anything else herein to the contrary, Metagenomi acknowledges, understands and agrees that no CMC or Manufacturing-related Know-How shall be provided by Moderna to Metagenomi under this Agreement, including this Section 5.6.3 (DT Co-Co Research Technology Transfer).

5.7 **Sublicensing**.

5.7.1 **Rights to Grant Licenses and Sublicenses in the Territory**. Except as permitted under this Section 5.7 (Sublicensing), without the prior approval of the other Party, neither Party shall grant a sublicense of the rights granted to such Party under Section 5.5 (DT Co-Co Program License), to Develop, Manufacture, perform Medical Affairs with respect to, or Commercialize the DT Co-Co Products in the Territory. If either Party wishes to grant a license or sublicense (as applicable) to a Third Party to Develop, Manufacture, perform Medical Affairs with respect to, or Commercialize any DT Co-Co Product in the Territory (except as permitted under this Section 5.7 (Sublicensing)), then such Party shall notify the other Party through the JSC, and the other Party shall review such proposal and determine whether to approve the extension of rights to such licensee or sublicensee. Following any such approval by the applicable JSC subcommittee of a proposed licensee or sublicensee in the Territory, unless otherwise agreed by the applicable JSC subcommittee, such Party shall have the right to lead discussions with potential licensees or sublicensees, negotiate terms, and execute the agreement with such licensee or sublicensee, provided that such Party shall provide the final form of any such agreement to the applicable JSC subcommittee for the applicable JSC subcommittee's approval prior to execution thereof. In addition, the Parties shall coordinate through the applicable JSC subcommittee with respect to the performance or any such licensees or sublicensees, as applicable, to ensure the efficient Development, Manufacture, performance of Medical Affairs with respect to, and Commercialization of the DT Co-Co Products throughout the Territory. Notwithstanding the foregoing, if a Party has exercised its Opt-Out Right pursuant to Section 6.8 (Opt-Out Right), then the foregoing restrictions on sublicensing shall not apply and, subject to Section 6.8.3 (Right of First Offer After Opt-Out), the Primary Party shall have the right to sublicense the rights granted under Section 5.5 (DT Co-Co Program License) without the prior approval of the Opt-Out Party, provided, however, notwithstanding anything herein to the contrary, in the event Moderna exercises its Opt-Out Right pursuant to Section 6.8 (Opt-Out Right), Moderna shall retain its right to Manufacture under Section 5.23 (Manufacture). Notwithstanding anything herein to the contrary, Metagenomi shall not grant a sublicense of the rights granted to it under Section 5.5 (DT Co-Co Program License) to Manufacture any DT Co-Co Products in the Territory.

5.7.2 **Costs and Income from Sublicensing Activities in the Territory**. The External Costs incurred in connection with the negotiation of an agreement with any such Third Party licensee or sublicensee (including legal costs and attorneys' fees) in the Territory as approved by the JSC shall be shared equally by the Parties as Other Operating Expenses in accordance with Section 7.4 (Co-Co Products Profit and Loss Share). Any Licensing Income received from such Third Party licensee or sublicensee with respect to the Development, Manufacture, Commercialization or Medical Affairs activities performed by such Third Party licensee or sublicensee in the Territory shall be shared by the Parties as part of the Operating Profits or Losses.

5.7.3 **Sublicense Agreements**. Each sublicense to a Third Party granted by a Party pursuant to this Section 5.7 (Sublicensing) shall (a) be subject and subordinate to this Agreement, (b) be consistent with the terms of this Agreement, (c) include obligations of confidentiality and non-use applicable to the Confidential Information of the other Party that are at least as stringent as those set forth in Article 11 (Confidentiality), and (d) include terms that are consistent with and no less restrictive with respect to the intellectual property provisions set forth in this Agreement, unless, in each case, the Parties agree otherwise.

5.8 **Responsibility for Sublicensees**. Notwithstanding any sublicense, the Party that grants rights to such licensee or sublicensee (as applicable) shall remain primarily liable to the other Party for the performance of all of its obligations under, and such Party's compliance with all provisions of, this Agreement. Each Party agrees that it shall be fully responsible and liable for any breach of the terms of this Agreement by any of its licensees or sublicensees (as applicable) to the same extent as if such Party itself has committed any such breach.

5.9 **Subcontracting for DT Co-Co Plans**.

5.9.1 **Subcontracting Rights**. Either Party may engage a Third Party to perform services on a fee for service basis in connection with the performance of its obligations or exercise of its rights under the DT Co-Co Plans in the Territory; provided that (a) any subcontractor engaged to perform Development activities with respect to a DT Co-Co Product must be set forth in the Development Plan for such DT Co-Co Product, (b) any subcontractor engaged to perform Medical Affairs with respect to a DT Co-Co Product in or for the Territory must be set forth in the Medical Affairs Plan for such DT Co-Co Product, and (c) any subcontractor engaged to perform Commercialization activities with respect to a DT Co-Co Product in or for the Territory must be set forth in the Commercialization Plan for such DT Co-Co Product.

5.9.2 **Subcontracting Requirements**. No subcontracting by either Party in accordance with Section 5.9.1 (Subcontracting Rights) shall relieve the subcontracting Party of its obligations under this Agreement or any liability hereunder. Each agreement with any Third Party subcontractor engaged in accordance with Section 5.9.1 (Subcontracting Rights) must (a) be consistent with the terms of this Agreement, (b) include obligations of confidentiality and non-use applicable to the Confidential Information of the other Party that are at least as stringent as those set forth in Article 11 (Confidentiality), and (c) include terms that are consistent with the intellectual property provisions set forth in this Agreement. As soon as reasonably practicable thereafter each Party shall provide the other Party with a copy of any executed agreement with a Third Party subcontractor that shall perform Development, Manufacturing, Commercialization, or Medical Affairs activities under this Agreement in the Territory (which copy may be redacted to

remove provisions that are not necessary to monitor compliance with this Section 5.9 (Subcontracting for DT Co-Co Plans)). **Schedule E** (Approved Subcontractors) sets forth a list of pre-approved subcontractors that may be engaged by either Party to perform activities hereunder in the Territory. Each Party shall remain directly responsible for any uncured material breach of this Agreement by a subcontractor and shall terminate promptly any such subcontractor with notice to the other Party of such termination.

5.10 **Third Party In-Licenses in the DT Co-Co Program**.

5.10.1 **Existing Co-Co In-Licenses**. The Parties agree that the agreements listed on **Schedule F** (Existing Co-Co In-Licenses) are existing in-licenses entered into by each Party that relate or pertain to the DT Co-Co Program. Each stipulates and agrees that the rights and licenses granted to it under this Agreement are subject to the applicable terms of all such existing in-licenses of the other Party as such terms exist on the Effective Date with respect to the other Party's Licensed DT Co-Co Technology that is being sublicensed thereunder, and such Party hereby agrees to comply with those terms. The Party that is a party to such an existing in-license has provided to the other Party a true and correct copy of such in-license prior to the Effective Date. Each Party further stipulates and agrees that the other Party's ability to comply with its obligations, and grant rights and licenses to such Party, under this Agreement may be limited by requirements and restrictions imposed on the other Party under such existing in-licenses, and notwithstanding any provision to the contrary set forth in this Agreement, the other Party shall not be required to take any action that would cause it to be in breach of any such existing in-license.

5.10.2 **Future DT Co-Co In-Licenses**. Except as otherwise expressly provided herein, each Party shall have the right, in its sole discretion, to independently negotiate, obtain and maintain rights to use any and all Patents or Know-How held by a Third Party (whether through acquisition or license) that relates or otherwise pertains to the DT Co-Co Program. Subject to the provisions of this Agreement, each Party shall be responsible for all obligations under the agreements with the relevant Third Parties to acquire such rights. Such agreements shall be referred to as "**Co-Co Moderna In-License Agreements**" in the event such Party is Moderna (or any of its Affiliates) and "**Co-Co Metagenomi In-License Agreements**" in the event such Party is Metagenomi (or any of its Affiliates).

5.10.3 **Co-Co Moderna In-License Agreements**.

(a) **Co-Co Moderna In-License Agreements**. Notwithstanding any provision in this Agreement to the contrary, during the Term for the DT Co-Co Program, Moderna shall have the right to determine, in its sole discretion, whether any Patents or Know-How under any Co-Co Moderna In-License Agreement can and should be sublicensed to Metagenomi for such DT Co-Co Program. If Moderna determines that any such Patents or Know-How can and should be sublicensed to Metagenomi for such DT Co-Co Program, then Moderna shall disclose to Metagenomi the terms of such Co-Co Moderna In-License Agreement (including by providing a copy of such Co-Co Moderna In-License Agreement to Metagenomi), subject to applicable confidentiality obligations and reasonable redaction of provisions that do not relate to the potential use of such Patents and Know-How for the performance by Metagenomi of its existing or future activities in the DT Co-Co Program. After Metagenomi has had an opportunity to review the terms of such Co-Co Moderna In-License Agreement and has agreed in writing to be subject to such

terms, (i) such Patents and Know-How shall be deemed "Controlled" by Moderna or its Affiliates for purposes of this Agreement and shall be included in the Moderna Licensed DT Co-Co Technology, (ii) the Parties shall allocate any royalty or other payment obligations to the applicable Third Party in connection with such Patents or Know-How in accordance with Section 5.10.3(b) (Payments under Co-Co Moderna In-License Agreements), and (iii) Metagenomi stipulates and agrees that the rights and licenses granted to it under this Agreement are subject to the applicable terms of such Co-Co Moderna In-License Agreement, and Metagenomi hereby agrees to comply with those terms. Metagenomi further stipulates and agrees that Moderna's ability to comply with its obligations, and grant rights and licenses to Metagenomi, under this Agreement may be limited by requirements and restrictions imposed on Moderna under such Co-Co Moderna In-License Agreement, and notwithstanding any provision to the contrary set forth in this Agreement, Moderna shall not be required to take any action that would cause it to be in breach of any such Co-Co Moderna In-License Agreement. If Moderna does not notify Metagenomi of a Co-Co Moderna In-License Agreement, then no Patents or Know-How under such Co-Co Moderna In-License Agreement shall be deemed "Controlled" by Moderna or its Affiliates for purposes of this Agreement, and they shall be excluded from the Moderna Licensed DT Co-Co Technology.

(b) **Payments under Co-Co Moderna In-License Agreements**. In the event the subject matter of a Co-Co Moderna In-License Agreement is broader than the Patents and Know-How thereunder that is included in the Moderna Licensed DT Co-Co Technology pursuant to Section 5.10.3(a) (Co-Co Moderna In-License Agreements), the Parties shall negotiate in good faith and reasonably allocate to Metagenomi the obligation to pay that portion of Moderna's Third Party Payment under such Co-Co Moderna In-License Agreement that is attributable to Metagenomi's exercise of its licenses or rights to such Patents or Know-How, subject to Section 5.10.5 (Metagenomi Payments for Certain Technology). A disagreement between the Parties on such payment allocation shall be resolved in accordance with Section 13.4 (Baseball Arbitration). In the event a Party exercises the Opt-Out Right under Section 6.8 (Opt-Out Right), from and after the Opt-Out Date, the Primary Party shall pay [***] of Moderna's Third Party Payment under such Co-Co Moderna In-License Agreement, subject to Section 7.11.2(d) (Third Party Payments).

5.10.4 **Co-Co Metagenomi In-License Agreements**.

(a) **Co-Co Metagenomi In-License Agreements**. Notwithstanding any provision in this Agreement to the contrary, during the Term for the DT Co-Co Program, Metagenomi shall have the right to determine, in its sole discretion, whether any Patents or Know-How under any Co-Co Metagenomi In-License Agreement can and should be sublicensed to Moderna for such DT Co-Co Program. If Metagenomi determines that any such Patents or Know-How can and should be sublicensed to Moderna for such DT Co-Co Program, then Metagenomi shall disclose to Moderna the terms of such Co-Co Metagenomi In-License Agreement (including by providing a copy of such Co-Co Metagenomi In-License Agreement to Moderna), subject to applicable confidentiality obligations and reasonable redaction of provisions that do not relate to the potential use of such Patents and Know-How for the performance by Moderna of its existing or future activities in the DT Co-Co Program. After Moderna has had an opportunity to review the terms of such Co-Co Metagenomi In-License Agreement and has agreed in writing to be subject to such terms, (i) such Patents and Know-How shall be deemed "Controlled" by Metagenomi or its Affiliates for purposes of this Agreement and shall be included in the Metagenomi Licensed

DT Co-Co Technology, (ii) the Parties shall allocate any royalty or other payment obligations to the applicable Third Party in connection with such Patents or Know-How in accordance with Section 5.10.4(b) (Payments under Co-Co Metagenomi In-License Agreements), and (iii) Moderna stipulates and agrees that the rights and licenses granted to it under this Agreement are subject to the applicable terms of such Co-Co Metagenomi In-License Agreement, and Moderna hereby agrees to comply with those terms. Moderna further stipulates and agrees that Metagenomi's ability to comply with its obligations, and grant rights and licenses to Moderna, under this Agreement may be limited by requirements and restrictions imposed on Metagenomi under such Co-Co Metagenomi In-License Agreement, and notwithstanding any provision to the contrary set forth in this Agreement, Metagenomi shall not be required to take any action that would cause it to be in breach of any such Co-Co Metagenomi In-License Agreement. If Metagenomi does not notify Moderna of a Co-Co Metagenomi In-License Agreement, then no Patents or Know-How under such Co-Co Metagenomi In-License Agreement shall be deemed "Controlled" by Metagenomi or its Affiliates for purposes of this Agreement, and they shall be excluded from the Metagenomi Licensed DT Co-Co Technology.

(b) **Payments under Co-Co Metagenomi In-License Agreements**. In the event the subject matter of a Co-Co Metagenomi In-License Agreement is broader than the Patents and Know-How thereunder that is included in the Metagenomi Licensed DT Co-Co Technology pursuant to Section 5.10.4(a) (Co-Co Metagenomi In-License Agreements), the Parties shall negotiate in good faith and reasonably allocate to Moderna the obligation to pay that portion of Metagenomi's Third Party Payment under such Co-Co Metagenomi In-License Agreement that is attributable to Moderna's exercise of its licenses or rights to such Patents or Know-How, subject to Section 5.10.5 (Metagenomi Payments for Certain Technology). A disagreement between the Parties on such payment allocation shall be resolved in accordance with Section 13.4 (Baseball Arbitration). In the event a Party exercises the Opt-Out Right under Section 6.8 (Opt-Out Right), from and after the Opt-Out Date, the Primary Party shall pay [***] of Metagenomi's Third Party Payment under such Co-Co Metagenomi In-License Agreement, subject to Section 7.11.2(d) (Third Party Payments).

5.10.5 **Metagenomi Payments for Certain Technology**. Notwithstanding the foregoing provisions of this Section 5.10 (Third Party In-Licenses in the DT Co-Co Program), if and to the extent any Patents or Know-How under a Co-Co Metagenomi In-License Agreement is necessary or reasonably useful to Exploit any Gene-Editing proteins (including the making or using thereof), that are the preferred choice for the applicable DT Co-Co Products, by reference to scientific merit, manufacturing ease, clinical safety and effectiveness, patentability and other relevant factors, Metagenomi shall bear [***] of the Third Party Payments under such Co-Co Metagenomi In-License Agreement attributable to each Party's Exploitation thereof in the DT Co-Co Program; provided that, from and after Metagenomi Opts-Out of the DT Co-Co Program, Moderna shall bear [***] of the Third Party Payments attributable to its continued Exploitation of the Patents and Know-How under the Co-Co Metagenomi In-License Agreement, subject to Section 7.11.2(d) (Third Party Payments), provided further that, notwithstanding anything else herein to the contrary, and without prejudicing Moderna's rights under Section 7.11.2(d) (Third Party Payments), [***] of such Third Party Payments may be deducted from any royalty payments to Metagenomi under Section 7.11.2 (Opt-Out Royalties) for the applicable DT Co-Co Product provided such deduction may not result in a reduction in excess of [***] of the royalties that otherwise would have been due and payable to Metagenomi under Section 7.11.2 (Opt-Out

Royalties). In addition, notwithstanding anything else herein to the contrary, and without prejudicing Moderna's rights under Section 7.11.2(d) (Third Party Payments), from and after Metagenomi Opts-Out of the DT Co-Co Program, [***] of Moderna's Third Party Payments under any and all Co-Co Moderna In-License Agreements for Patents or Know-How necessary to Exploit any Gene-Editing proteins (including the making or using thereof) due to the Metagenomi Gene-Editing proteins being Covered by such Patents or Know-How or due to the Metagenomi Gene-Editing proteins being materially less efficacious than the Third Party Gene-Editing proteins, may be deducted from any royalty payments to Metagenomi under Section 7.11.2 (Opt-Out Royalties) for the applicable DT Co-Co Product provided such deduction may not result in a reduction in excess of [***] of the royalties that otherwise would have been due and payable to Metagenomi under Section 7.11.2 (Opt-Out Royalties).

5.10.6 **Moderna Payments for Certain Technology**. Notwithstanding the foregoing provisions of this Section 5.10 (Third Party In-Licenses in the DT Co-Co Program), if and to the extent any Patents or Know-How under a Co-Co Moderna In-License Agreement is necessary or reasonably useful to Exploit any mRNA-LNP Technology (including the making or using thereof), that are the preferred choice for the applicable DT Co-Co Products, by reference to scientific merit, manufacturing ease, clinical safety and effectiveness, patentability and other relevant factors, Moderna shall bear [***] of the Third Party Payments attributable to each Party's Exploitation thereof in the DT Co-Co Program, provided that, from and after Moderna Opts-Out of the DT Co-Co Program, Metagenomi shall bear [***] of the Third Party Payments attributable to its continued Exploitation of the Patents and Know-How under the Co-Co Moderna In-License Agreement, subject to Section 7.11.2(d) (Third Party Payments).

5.11 **Third Party In-Licenses in RT Programs**.

5.11.1 **Existing RT In-Licenses**. The Parties agree that the agreements listed on **Schedule G** (Existing RT In-Licenses) are existing in-licenses entered into by each Party that relate or pertain to the RT Programs. Each stipulates and agrees that the rights and licenses granted to it under this Agreement are subject to the applicable terms of all such existing in-licenses of the other Party as such terms exist on the Effective Date, and such Party hereby agrees to comply with those terms. The Party that is a party to such an existing in-license has provided to the other Party a true and correct copy of such in-license prior to the Effective Date. Each Party further stipulates and agrees that the other Party's ability to comply with its obligations, and grant rights and licenses to such Party under this Agreement may be limited by requirements and restrictions imposed on the other Party under such existing in-licenses, and notwithstanding any provision to the contrary set forth in this Agreement, the other Party shall not be required to take any action that would cause it to be in breach of any such existing in-license.

5.11.2 **Future RT In-Licenses**. Except as otherwise expressly provided herein, each Party shall have the right, in its sole discretion, to independently negotiate, obtain and maintain rights to use any and all Patents or Know-How held by a Third Party (whether through acquisition or license) that relates or otherwise pertains to the RT Programs. Subject to the provisions of this Agreement, each Party shall be responsible for all obligations under the agreements with the relevant Third Parties to acquire such rights. Such agreements shall be referred to as "**RT Moderna In-License Agreements**" in the event such Party is Moderna (or any of its Affiliates) and "**RT Metagenomi In-License Agreements**" in the event such Party is Metagenomi (or any of its Affiliates).

5.11.3 **RT Moderna In-License Agreements**. Notwithstanding any provision in this Agreement to the contrary, on an RT Program-by-RT Program basis, during the RT Research Term, Moderna shall have the right to determine, in its sole discretion, whether any Patents or Know-How under any RT Moderna In-License Agreement can and should be sublicensed to Metagenomi for such RT Program. If Moderna determines that any such Patents or Know-How can and should sublicensed to Metagenomi for such RT Program, then Moderna shall disclose to Metagenomi the terms of such RT Moderna In-License Agreement (including by providing a copy of such RT Moderna In-License Agreement to Metagenomi), subject to applicable confidentiality obligations and reasonable redaction of provisions that do not relate to the potential use of such Patents and Know-How for the performance by Metagenomi of its existing or future activities under the RT Plan. Upon such disclosure, (i) such Patents and Know-How shall be deemed "Controlled" by Moderna or its Affiliates for purposes of this Agreement and shall be included in Moderna's RT Research Licensed Technology and (ii) subject to Section 5.11.5 (Metagenomi Payments for Certain Technology), Moderna shall pay all (subject to Section 7.9.4 (Third Party Payments)) Third Party Payments under such RT Moderna In-License Agreement. After Metagenomi has had an opportunity to review the terms of such RT Moderna In-License Agreement and has agreed in writing to be subject to such terms (provided that Metagenomi may only object to being subjected to such terms if it would have a material impact on Metagenomi's business outside the collaboration contemplated by this Agreement), Metagenomi stipulates and agrees that the rights and licenses granted to it under this Agreement are subject to the applicable terms of such RT Moderna In-License Agreement, and Metagenomi hereby agrees to comply with those terms. Metagenomi further stipulates and agrees that Moderna's ability to comply with its obligations, and grant rights and licenses to Metagenomi, under this Agreement may be limited by requirements and restrictions imposed on Moderna under such RT Moderna In-License Agreement, and notwithstanding any provision to the contrary set forth in this Agreement, Moderna shall not be required to take any action that would cause it to be in breach of any such RT Moderna In-License Agreement. If Moderna does not notify Metagenomi of an RT Moderna In-License Agreement, no Patents or Know-How under such RT Moderna In-License Agreement shall be "Controlled" by Moderna or its Affiliates for purposes of this Agreement, and they shall be excluded from Moderna's RT Research Licensed Technology.

5.11.4 **RT Metagenomi In-License Agreements**. Notwithstanding any provision in this Agreement to the contrary, on a RT Program-by-RT Program basis, during the RT Research Term, Metagenomi shall disclose to Moderna all RT Metagenomi In-License Agreements (including by providing a copy of such RT Metagenomi In-License Agreement to Moderna). Metagenomi shall use reasonable efforts to ensure that any such rights acquired under any RT Metagenomi In-License Agreement are freely sublicensable to Moderna hereunder, provided if Metagenomi (or any of its Affiliates) is unable to obtain the right to grant a sublicense to Moderna for any RT Program under all intellectual property rights licensed to Metagenomi (or its Affiliate) under such RT Metagenomi In-License Agreement, then Metagenomi (or its Affiliate) shall exclude any such intellectual property rights for the applicable RT Program from the scope of such RT Metagenomi In-License Agreement and shall promptly notify Moderna that it has entered into such RT Metagenomi In-License Agreement. In the event Moderna so elects, and to the extent such Patents and Know-How are sublicensable, (i) the applicable Patents and Know-How under

such RT Metagenomi In-License Agreement shall be deemed "Controlled" by Metagenomi or its Affiliates for purposes of this Agreement as part of Metagenomi's RT Program Technology and (ii) subject to Sections 5.11.5 (Metagenomi Payments for Certain Technology), 5.11.6 (Moderna Payments for Certain Technology) and 7.9.4 (Third Party Payments), Moderna shall pay all Third Party Payments under such RT Metagenomi In-License Agreement. Moderna stipulates and agrees that the rights and licenses granted to it under this Agreement are subject to the applicable terms of such RT Metagenomi In-License Agreements, and Moderna hereby agrees to comply with those terms. Moderna further stipulates and agrees that Metagenomi's ability to comply with its obligations, and grant rights and licenses to Moderna, under this Agreement may be limited by requirements and restrictions imposed on Metagenomi under such RT Metagenomi In-License Agreements, and notwithstanding any provision to the contrary set forth in this Agreement, Metagenomi shall not be required to take any action that would cause it to be in breach of any such RT Metagenomi In-License Agreements.

5.11.5 **Metagenomi Payments for Certain Technology**. Notwithstanding the foregoing provisions of this Section 5.11 (Third Party In-Licenses in RT Programs), if and to the extent any Patents or Know-How under an RT Metagenomi In-License Agreement is necessary to Exploit any Gene-Editing proteins (including the making or using thereof) that are the preferred choice for the applicable Licensed RT Products, by reference to scientific merit, manufacturing ease, clinical safety and effectiveness, patentability and other relevant factors, Metagenomi shall bear [***] of the Third Party Payments attributable to each Party's Exploitation thereof in the applicable RT Programs. Moderna shall bear [***] of the Third Party Payments attributable to each Party's Exploitation of any Patents or Know-How under an RT Moderna In-License Agreement necessary to Exploit any Gene-Editing proteins (including the making or using thereof), in each case where such Patents or Know-How is necessary either due to the Metagenomi Gene-Editing proteins being covered by such Patents or Know-How or due to the Metagenomi Gene-Editing proteins being materially less efficacious than the Third Party Gene-Editing proteins, subject to Section 7.9.4 (Third Party Payments), provided that, notwithstanding anything else herein to the contrary, and without prejudicing Moderna's rights under Section 7.9.4 (Third Party Payments), [***] of such Third Party Payments may be deducted from any royalty payments to Metagenomi under Section 7.9 (Royalties on Products Directed Against an RT Target) and for the applicable Licensed RT Product provided such deduction may not result in a reduction in excess of [***] of the royalties that otherwise would have been due and payable to Metagenomi under Section 7.9 (Royalties on Products Directed Against an RT Target).

5.11.6 **Moderna Payments for Certain Technology**. After Moderna exercises the RT Option for such RT Program, the Patents and Know-How elected by Moderna pursuant to Section 5.11.4 (RT Metagenomi In-License Agreements) shall automatically be included in Metagenomi's Licensed RT Technology with respect to such RT Program. Subject to Section 5.11.5 (Metagenomi Payments for Certain Technology), in the event the subject matter of the relevant RT Metagenomi In-License Agreement is broader than such Patents and Know-How, the Parties shall negotiate in good faith and reasonably allocate to Moderna the obligation to pay that portion of Metagenomi's Third Party Payment under the applicable RT Metagenomi In-License Agreement that is attributable to Moderna's exercise of its licenses or rights to such Patents or Know-How after Moderna exercises the RT Option. Moderna's such payment obligations are subject to Section 7.9.4 (Third Party Payments) as if such payments constituted Moderna's payments to a Third Party contemplated by Section 7.9.4 (Third Party Payments), provided Moderna shall pay Metagenomi additional payments to reflect the effect of Section 7.9.4 (Third Party Payments) had Moderna been the Party to such RT Metagenomi In-License Agreement and paid all payments to the Third Party thereunder.

5.12 **Third Party In-Licenses in DT Programs**.

5.12.1 **Existing DT In-Licenses**. The Parties agree that the agreements listed on **Schedule H** (Existing DT In-Licenses) are existing in-licenses entered into by each Party that relate or pertain to the DT Programs. Each stipulates and agrees that the rights and licenses granted to it under this Agreement are subject to the applicable terms of all such existing in-licenses of the other Party as such terms exist on the Effective Date, and such Party hereby agrees to comply with those terms. The Party that is a party to such an existing in-license has provided to the other Party a true and correct copy of such in-license prior to the Effective Date. Each Party further stipulates and agrees that the other Party's ability to comply with its obligations, and grant rights and licenses to such Party under this Agreement may be limited by requirements and restrictions imposed on the other Party under such existing in-licenses, and notwithstanding any provision to the contrary set forth in this Agreement, the other Party shall not be required to take any action that would cause it to be in breach of any such existing in-license.

5.12.2 **Future DT In-Licenses**. Except as otherwise expressly provided herein, each Party shall have the right, in its sole discretion, to independently negotiate, obtain and maintain rights to use any and all Patents or Know-How held by a Third Party (whether through acquisition or license) that relates or otherwise pertains to the DT Programs. Subject to the provisions of this Agreement, each Party shall be responsible for all obligations under the agreements with the relevant Third Parties to acquire such rights. Such agreements shall be referred to as "**DT Moderna In-License Agreements**" in the event such Party is Moderna (or any of its Affiliates) and "**DT Metagenomi In-License Agreements**" in the event such Party is Metagenomi (or any of its Affiliates).

5.12.3 **DT Moderna In-License Agreements**. Notwithstanding any provision in this Agreement to the contrary, on a DT Program-by-DT Program basis, during the DT Moderna Research Term, Moderna shall have the right to determine, in its sole discretion, whether any Patents or Know-How under any DT Moderna In-License Agreement can and should be sublicensed to Metagenomi for such DT Program. If Moderna determines that any such Patents or Know-How can and should be sublicensed to Metagenomi for such DT Program, then Moderna shall disclose to Metagenomi the terms of such DT Moderna In-License Agreement (including by providing a copy of such DT Moderna In-License Agreement to Metagenomi), subject to applicable confidentiality obligations and reasonable redaction of provisions that do not relate to the potential use of such Patents and Know-How for the performance by Metagenomi of its existing or future activities under the DT Plan. Upon such disclosure, (i) such Patents and Know-How shall be deemed "Controlled" by Moderna or its Affiliates for purposes of this Agreement and shall be included in Moderna's DT Moderna Research Licensed Technology and (ii) subject to Section 5.12.5 (Metagenomi Payments for Certain Technology), Moderna shall pay all (subject to Section 7.10.4 (Third Party Payments)) Third Party Payments under such DT Moderna In-License Agreement. After Metagenomi has had an opportunity to review the terms of such DT Moderna In-License Agreement and has agreed in writing to be subject to such terms (provided that Metagenomi may only object to being subjected to such terms if it would have a material

impact on Metagenomi's business outside the collaboration contemplated by this Agreement), Metagenomi stipulates and agrees that the rights and licenses granted to it under this Agreement are subject to the applicable terms of such DT Moderna In-License Agreement, and Metagenomi hereby agrees to comply with those terms. Metagenomi further stipulates and agrees that Moderna's ability to comply with its obligations, and grant rights and licenses to Metagenomi, under this Agreement may be limited by requirements and restrictions imposed on Moderna under such DT Moderna In-License Agreement, and notwithstanding any provision to the contrary set forth in this Agreement, Moderna shall not be required to take any action that would cause it to be in breach of any such DT Moderna In-License Agreement. If Moderna does not notify Metagenomi of a DT Moderna In-License Agreement, no Patents or Know-How under such DT Moderna In-License Agreement shall be "Controlled" by Moderna or its Affiliates for purposes of this Agreement, and they shall be excluded from Moderna's DT Moderna Research Licensed Technology.

5.12.4 **DT Metagenomi In-License Agreements**. Notwithstanding any provision in this Agreement to the contrary, on a DT Program-by-DT Program basis, during the DT Moderna Research Term, Metagenomi shall disclose to Moderna all DT Metagenomi In-License Agreements (including by providing a copy of such DT Metagenomi In-License Agreement to Moderna). Metagenomi shall use reasonable efforts to ensure that any such rights acquired under any DT Metagenomi In-License Agreement are freely sublicensable to Moderna hereunder, provided if Metagenomi (or any of its Affiliates) is unable to obtain the right to grant a sublicense to Moderna for any DT Program under all intellectual property rights licensed to Metagenomi (or its Affiliate) under such DT Metagenomi In-License Agreement, then Metagenomi (or its Affiliate) shall exclude any such intellectual property rights for the applicable DT Program from the scope of such DT Metagenomi In-License Agreement and shall promptly notify Moderna that it has entered into such DT Metagenomi In-License Agreement. In the event Moderna so elects, and to the extent such Patents and Know-How are sublicensable, (i) the applicable Patents and Know-How under such DT Metagenomi In-License Agreement shall be deemed "Controlled" by Metagenomi or its Affiliates for purposes of this Agreement as part of Metagenomi's DT Program Technology and (ii) subject to Sections 5.12.5 (Metagenomi Payments for Certain Technology), 5.12.6 (Moderna Payments for Certain Technology) and 7.10.4 (Third Party Payments), Moderna shall pay all Third Party Payments under such DT Metagenomi In-License Agreement. Moderna stipulates and agrees that the rights and licenses granted to it under this Agreement are subject to the applicable terms of such DT Metagenomi In-License Agreements, and Moderna hereby agrees to comply with those terms. Moderna further stipulates and agrees that Metagenomi's ability to comply with its obligations, and grant rights and licenses to Moderna, under this Agreement may be limited by requirements and restrictions imposed on Metagenomi under such DT Metagenomi In-License Agreements, and notwithstanding any provision to the contrary set forth in this Agreement, Metagenomi shall not be required to take any action that would cause it to be in breach of any such DT Metagenomi In-License Agreements.

5.12.5 **Metagenomi Payments for Certain Technology**. Notwithstanding the foregoing provisions of this Section 5.12 (Third Party In-Licenses in DT Programs), if and to the extent any Patents or Know-How under a DT Metagenomi In-License Agreement is necessary to Exploit Gene-Editing proteins (including the making or using thereof) that are the preferred choice for the applicable Licensed DT Products, by reference to scientific merit, manufacturing ease, clinical safety and effectiveness, patentability and other relevant factors, Metagenomi shall bear

[***] of the Third Party Payments attributable to each Party's Exploitation thereof in the applicable DT Programs. Moderna shall bear [***] of the Third Party Payments attributable to each Party's Exploitation of any Patents or Know-How under a DT Moderna In-License Agreement necessary to Exploit any Gene-Editing proteins (including the making or using thereof) in each case where such Patents or Know-How is necessary either due to the Metagenomi Gene-Editing proteins being covered by such Patents or Know-How or due to the Metagenomi Gene-Editing proteins being materially less efficacious than the Third Party Gene-Editing protein, subject to Section 7.10.4 (Third Party Payments), provided that, notwithstanding anything else herein to the contrary, and without prejudicing Moderna's rights under Section 7.10.4 (Third Party Payments), [***] of such Third Party Payments may be deducted from any royalty payments to Metagenomi under Section 7.10 (Royalties on Products Directed Against a DT Moderna Target) for the applicable Licensed DT Product provided such deduction may not result in a reduction in excess of [***] of the royalties that otherwise would have been due and payable to Metagenomi under Section 7.10 (Royalties on Products Directed Against a DT Moderna Target).

5.12.6 **Moderna Payments for Certain Technology**. After Moderna exercises the DT Option for such DT Program, the Patents and Know-How elected by Moderna pursuant to Section 5.12.4 (DT Metagenomi In-License Agreements) shall automatically be included in Metagenomi's Licensed DT Moderna Technology with respect to such DT Program. Subject to Section 5.12.5 (Metagenomi Payments for Certain Technology), in the event the subject matter of the relevant DT Metagenomi In-License Agreement is broader than such Patents and Know-How, the Parties shall negotiate in good faith and reasonably allocate to Moderna the obligation to pay that portion of Metagenomi's Third Party Payment under the applicable DT Metagenomi In-License Agreement that is attributable to Moderna's exercise of its licenses or rights to such Patents or Know-How after Moderna exercises the DT Option. Moderna's such payment obligations are subject to Section 7.10.4 (Third Party Payments) as if such payments constituted Moderna's payments to a Third Party contemplated by Section 7.10.4 (Third Party Payments), provided Moderna shall pay Metagenomi additional payments to reflect the effect of Section 7.10.4 (Third Party Payments) had Moderna been the Party to such DT Metagenomi In-License Agreement and paid all payments to the Third Party thereunder.

5.13 **License to Moderna Upon Exercise of the RT Option**. On an RT Preclinical Research Program-by-RT Preclinical Research Program basis, upon Moderna's exercise of the RT Option (pursuant to Section 3.9 (RT Option)) with respect to the RT Target under such RT Preclinical Research Program, effective as of the applicable License Effective Date, all RT Candidates in such RT Preclinical Research Program shall become Licensed RT Products in such RT Preclinical Research Program, and Metagenomi agrees to grant and hereby grants to Moderna an exclusive (even as to Metagenomi and its Affiliates) license, with the right to sublicense through multiple tiers, under Metagenomi's Background Technology, Metagenomi's RT Program Technology with respect to such RT Preclinical Research Program, and all other Metagenomi Program Technology and Metagenomi's interest in any Joint IP, in each case relevant to such RT Preclinical Research Program (collectively, the "**Licensed RT Technology**"), to Exploit all applications of the RT Target in such RT Preclinical Research Program, including all Licensed RT Products in such RT Preclinical Research Program, for any use in the Territory in the RT Field during the Term (the "**RT License**"). During the Term, Metagenomi shall ensure that it Controls all Know-How or Patents claiming or Covering Gene Editing conceived, discovered, invented or created by or on behalf of Metagenomi (including jointly with others) so as to be able to grant

Moderna the foregoing license. For clarity, on an RT Preclinical Research Program-by-RT Preclinical Research Program basis, with respect to the RT Target in the RT Field in an RT Preclinical Research Program for which Moderna has not exercised an RT Option by the end of the applicable RT Option Period, (i) the foregoing license does not grant and shall not grant any rights to Moderna with respect to such RT Target in the RT Field, and (ii) Metagenomi shall retain all rights to Metagenomi Program Technology and Metagenomi's interest in any Joint IP (a) with respect to such RT Target in the RT Field and (b) with respect to any Field other than the RT Field, except as expressly set forth herein otherwise.

5.14 **RT Technology Transfer**. On an RT Preclinical Research Program-by-RT Preclinical Research Program basis:

5.14.1 as soon as reasonably practicable but in any event no less than thirty (30) days after the RT Option Exercise Date for such RT Preclinical Research Program, Metagenomi shall provide to Moderna with (i) one (1) electronic copy of all of Metagenomi's RT Records and RT Results created or generated in all RT Programs as of the RT Option Exercise Date; (ii) one (1) electronic copy of all documents, data or other Know-How in Metagenomi's possession or Control as of the RT Option Exercise Date that describes or contains the Licensed RT Technology; (iii) all Materials within the Licensed RT Technology in Metagenomi's possession or Control as of the RT Option Exercise Date, and (iv) the RT Target and Licensed RT Products in such RT Preclinical Research Program designed, created, synthesized or otherwise Manufactured by or on behalf of Metagenomi as of the RT Option Exercise Date;

5.14.2 following the receipt of the RT Option Fee for such RT Preclinical Research Program, from time to time during the Term, Metagenomi shall provide to Moderna one (1) electronic copy of all documents, data or other Know-How in Metagenomi's possession or Control that describes or contains the Licensed RT Technology and all Materials within the Licensed RT Technology in Metagenomi's possession or Control for such RT Preclinical Research Program but was not previously provided; and

5.14.3 following the receipt of the RT Option Fee for such RT Preclinical Research Program, during the Term, Metagenomi shall reasonably cooperate with Moderna to facilitate the technology transfer of the Licensed RT Technology, RT Candidates and the RT Target in such RT Preclinical Research Program to Moderna to enable the Development, Manufacture or Commercialization of such RT Candidates and the RT Target in the RT Field in the Territory. Such cooperation shall include providing Moderna with reasonable access by teleconference or in-person at Metagenomi's facilities to appropriate personnel from Metagenomi to provide Moderna with technical assistance and consultation in connection with the transfer of such Licensed RT Technology, RT Candidates and RT Target. Metagenomi shall provide such cooperation for no additional consideration during the RT Research Term, and for [***] thereafter. After the expiration of such [***] period, Moderna shall reimburse Metagenomi for its reasonable costs to provide such cooperation.

5.15 **License to Moderna Upon Exercise of the DT Option**. On a DT Moderna Research Program-by-DT Moderna Research Program basis, upon Moderna's exercise of the DT Option (pursuant to Section 4.9 (DT Option)) with respect to the DT Target under such DT Moderna Research Program, effective as of the applicable License Effective Date, all DT Moderna Candidates in such DT Moderna Research Program shall become Licensed DT Products, and Metagenomi agrees to grant and hereby grants to Moderna an exclusive (even as to Metagenomi and its Affiliates) license, with the right to sublicense through multiple tiers, under Metagenomi's Background Technology, Metagenomi's DT Program Technology with respect to such DT Moderna Research Program, and all other Metagenomi Program Technology and Metagenomi's interest in any Joint IP, in each case relevant to such DT Moderna Research Program (collectively, the "**Licensed DT Moderna Technology**"), to Exploit all applications of the DT Moderna Target in such DT Moderna Research Program, including all Licensed DT Products in such DT Moderna Research Program, for any use in the Territory in the DT Field during the Term (the "**DT License**"). During the Term, Metagenomi shall ensure that it Controls all Know-How or Patents claiming or Covering Gene Editing conceived, discovered, invented or created by or on behalf of Metagenomi (including jointly with others) so as to be able to grant Moderna the foregoing license. For clarity, on a DT Moderna Research Program-by-DT Moderna Research Program basis, with respect to the DT Moderna Target in the DT Field in a DT Moderna Research Program for which Moderna has not exercised a DT Option by the end of the applicable DT Option Period, (i) the foregoing license does not grant and shall not grant any rights to Moderna with respect to such DT Target in the DT Field, and (ii) Metagenomi shall retain all rights to Metagenomi Program Technology and Metagenomi's interest in any Joint IP (a) with respect to such DT Target in the DT Field, and (b) with respect to any Field other than the DT Field except as expressly set forth herein otherwise.

5.16 **DT Technology Transfer**. On a DT Moderna Research Program-by-DT Moderna Research Program basis:

5.16.1 as soon as reasonably practicable but in any event no less than thirty (30) days after the DT Option Exercise Date for such DT Moderna Research Program, Metagenomi shall provide to Moderna with (i) one (1) electronic copy of all of Metagenomi's DT Moderna Records and DT Moderna Results created or generated in all DT Programs as of the DT Option Exercise Date; (ii) one (1) electronic copy of all documents, data or other Know-How in Metagenomi's possession or Control as of the DT Option Exercise Date that describes or contains the Licensed DT Moderna Technology; (iii) all Materials within the Licensed DT Moderna Technology in Metagenomi's possession or Control as of the DT Option Exercise Date; and (iv) the DT Moderna Target and Licensed DT Products in such DT Moderna Research Program designed, created, synthesized or otherwise Manufactured by or on behalf of Metagenomi as of the DT Option Exercise Date;

5.16.2 following the receipt of the DT Option Fee for such DT Moderna Research Program, from time to time during the Term, Metagenomi shall provide to Moderna one (1) electronic copy of all documents, data or other Know-How in Metagenomi's possession or Control that describes or contains the Licensed DT Moderna Technology and all Materials within the Licensed DT Moderna Technology in Metagenomi's possession or Control for such DT Moderna Research Program but was not previously provided; and

5.16.3 following the receipt of the DT Option Fee for such DT Moderna Research Program, during the Term, Metagenomi shall reasonably cooperate with Moderna to facilitate the technology transfer of the Licensed DT Moderna Technology, Licensed DT Products and the DT Moderna Target in such DT Moderna Research Program to Moderna to enable the Development, Manufacture or Commercialization of such Licensed DT Product and the DT Moderna Target in the DT Field in the Territory. Such cooperation shall include providing Moderna with reasonable access by teleconference or in-person at Metagenomi's facilities to appropriate personnel from Metagenomi to provide Moderna with technical assistance and consultation in connection with the transfer of such Licensed DT Moderna Technology, Licensed DT Products and DT Moderna Target. Metagenomi shall provide such cooperation for no additional consideration during the DT Moderna Research Term, and for [***]. After the expiration of such [***] period, Moderna shall reimburse Metagenomi for its reasonable costs to provide such cooperation.

Notwithstanding the foregoing provisions of this Section 5.16 (DT Technology Transfer), Metagenomi's obligations under this Section 5.16 (DT Technology Transfer) and Section 5.17 (Metagenomi Licensed Collaboration Technology Update) with respect to Licensed DT Moderna Technology shall be limited to (i) Licensed DT Moderna Technology that comes into the Control of Metagenomi or any of its Affiliates prior to the [***] of the expiration of the DT Moderna Research Term (including, for the avoidance of doubt, prior to or during the DT Moderna Research Term), (ii) any and all improvements to such Licensed DT Moderna Technology that comes into the Control of Metagenomi or any of its Affiliates within [***] after the expiration of the DT Moderna Research Term, and (iii) in the event there is any fundamental issue with any of the foregoing Licensed DT Moderna Technology, as reasonably determined by Moderna, that prevents Moderna from Exploiting Licensed DT Products in such DT Moderna Research Program, any Licensed DT Moderna Technology that may resolve such issue and that comes into the Control of Metagenomi or any of its Affiliates within [***]n (10) years after the expiration of the DT Moderna Research Term, in each case ((i)-(iii)), including any and all Patents within Licensed DT Moderna Technology that Cover the Licensed DT Moderna Technology in each of (i)-(iii), and any and all Patents claiming priority, directly or indirectly, to the foregoing Patents, regardless of when any of the foregoing Patent is filed.

5.17 **Metagenomi Licensed Collaboration Technology Update**. Without prejudice to any other obligations of Metagenomi under this Agreement, during the Term, Metagenomi shall (a) provide regular and detailed updates to Moderna and the JSC regarding developments relating to Metagenomi's Background Technology and Metagenomi Licensed Collaboration Technology (including any improvements or modifications thereto) that may have applicability to the Research, Development or Commercialization of any Products, which updates shall be (i) no less frequently than quarterly prior to the [***] of the Effective Date, (ii) on a biannual basis after the [***] of the Effective Date and continuing until the expiration of the Research Term, and (iii) [***] thereafter, and (b) provide Moderna with reasonable access by teleconference or in-person at Metagenomi's facilities to appropriate personnel from Metagenomi to provide Moderna with technical assistance and consultation in connection with such updates or to otherwise support the advancement of the applicable Program. For the avoidance of doubt, to the extent within the definitions of Metagenomi's Background Technology or Metagenomi Licensed Collaboration Technology, as the case may be, such developments shall be automatically included in the licenses granted to Moderna under this Article 5 (Licenses; Exclusivity; Manufacture) without any action on the part of or additional consideration from Moderna.

5.18 **Collaboration Materials Transfer**. If either Party is required to transfer to the other Party any Collaboration Materials pursuant to an applicable Program Plan, the terms of this Section 5.18 (Collaboration Materials Transfer) shall apply. The transferring Party shall provide the other Party with the applicable Collaboration Materials in accordance with the Program Plan. Any Collaboration Materials provided pursuant to the Program Plan shall be accompanied by a material transfer record substantially in the form of **Schedule I** attached hereto ("**Material Transfer Record**"). Each such Material Transfer Record shall be signed by an authorized representative of the providing Party, and then signed by an authorized representative of the receiving Party and returned to the providing Party. The receiving Party shall use the Collaboration Materials solely to conduct the activities contemplated under the Program Plan and for no other purpose. The receiving Party shall not sell, transfer, disclose or otherwise provide access to the Collaboration Materials without the written consent of the providing Party, except that the receiving Party may allow access to the Collaboration Materials to its Affiliates and its and their respective employees and officers who require such access to perform its activities under this Agreement and solely for purposes consistent with this Agreement; provided that the receiving Party binds such Affiliates, employees and officers by written agreement to retain and use the Collaboration Materials only in a manner that is consistent with the terms of this Agreement and the applicable Material Transfer Record. THE COLLABORATION MATERIALS ARE PROVIDED "AS IS." NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, OF ANY KIND, ARE GIVEN BY THE PROVIDING PARTY WITH RESPECT TO ANY OF THE COLLABORATION MATERIALS, INCLUDING THEIR CONDITION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The receiving Party acknowledges the experimental nature of the Collaboration Materials and that accordingly, not all characteristics of the Collaboration Materials are necessarily known. The Collaboration Materials transfer to be undertaken under this Section 5.18 (Collaboration Materials Transfer) shall be overseen by a Working Group established for such purposes.

5.19 **No Other Rights and Retained Rights**. Nothing in this Agreement shall be interpreted to grant a Party any rights under any intellectual property rights owned or Controlled by the other Party, in each case, that are not expressly granted herein, whether by implication, estoppel, or otherwise. Metagenomi shall not practice the Moderna Licensed Collaboration Technology other than as expressly licensed and permitted under this Agreement. Any rights not expressly granted to Metagenomi by Moderna under this Agreement with respect to the Moderna Licensed Collaboration Technology are hereby retained by Moderna, and Moderna hereby expressly retains the right (on behalf of itself, its Affiliates, and its licensees) to (a) Manufacture the DT Co-Co Products worldwide, and (b) perform Moderna's other obligations under this Agreement. Moderna shall not practice the Metagenomi Licensed Collaboration Technology other than as expressly licensed and permitted under this Agreement. Any rights not expressly granted to Moderna by Metagenomi under this Agreement with respect to the Metagenomi Licensed Collaboration Technology are hereby retained by Metagenomi.

5.20 **RT Exclusivity**. During the RT Research Term and within [***] thereafter (collectively, the "**RT Exclusivity Period**"), except as otherwise required under or expressly set forth in this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option, covenant not to sue, or other like right thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit any candidate or product in the RT Field. After the expiration of the RT Exclusivity Period, for the remainder of the Term of this Agreement, on a RT Target-by-RT Target basis, except as otherwise required under this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor

authorize, (sub)license (including granting any option, covenant not to sue, or other like right thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit in the RT Field any candidate or product Directed Against any RT Targets with respect to which Moderna has exercised the RT Option. During the RT Research Term, except as otherwise required under this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option, covenant not to sue, or other like right thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit any Guide or Donor Template that is specific to any RT Candidate (and, for clarity, excluding Guides and general homology of Donor Templates that are used generally to knock-in a gene but are not specific to the corresponding target). During the Term, except as otherwise required under this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option, covenant not to sue, or other like right thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit any Guide or Donor Template that is specific to any Licensed RT Product from any RT Preclinical Research Program for which Moderna has exercised an RT Option (and, for clarity, excluding Guides and general homology of Donor Templates that are used generally to knock-in a gene but are not specific to the corresponding target). The obligations and restrictions in this Section 5.20 (RT Exclusivity) shall not apply to any New Affiliate of Metagenomi, provided that such New Affiliate is not utilizing the applicable Metagenomi Licensed Collaboration Technology or Moderna Licensed Collaboration Technology with respect to the activity that would otherwise be restricted under this Section 5.20 (RT Exclusivity). Notwithstanding the foregoing provisions of this Section 5.20 (RT Exclusivity), after [***], the term "RT Field" for purposes of this Section 5.20 (RT Exclusivity) shall no longer include BEC.

5.21 **DT Exclusivity**. During the DT Moderna Research Term and within [***] thereafter (collectively, the "**DT Exclusivity Period**"), except as otherwise required under this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option thereto) or otherwise enable any Third Parties to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit any candidate or product in the DT Field Directed Against any of the Reserved DT Targets or any of the DT Moderna Targets that is not a Discontinued Target. After the expiration of the DT Exclusivity Period, for the remainder of the Term of this Agreement, on a DT Moderna Target-by-DT Moderna Target basis, except as otherwise required under this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit any candidate or product Directed Against any DT Moderna Targets in the DT Field with respect to which Moderna has exercised the DT Option. Until the first anniversary of the Effective Date, except as otherwise required under this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option, covenant not to sue, or other like right thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit in the in vivo Gene Editing field any Guide or Donor Template that is specific to any DT Moderna Candidate (and, for clarity, excluding Guides and general homology of Donor Templates that are used generally to knock-in a gene but are not specific to the corresponding target). After

the first anniversary of the Effective Date and during the remainder of the DT Moderna Research Term, except as otherwise required under this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option, covenant not to sue, or other like right thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit in the in vivo Gene Editing field any Guide or Donor Template specific to any DT Moderna Candidate Directed Against any Reserved DT Target or DT Moderna Target (and, for clarity, excluding Guides and general homology of Donor Templates that are used generally to knock-in a gene but are not specific to the corresponding target). During the Term, except as otherwise required under this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option, covenant not to sue, or other like right thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit any Guide or Donor Template specific to any Licensed DT Product from any DT Moderna Research Program for which Moderna has exercised a DT Option (and, for clarity, excluding Guides and general homology of Donor Templates that are used generally to knock-in a gene but are not specific to the corresponding target). The obligations and restrictions in this Section 5.21.1 (DT Exclusivity) shall not apply to any New Affiliate of Metagenomi, provided that such New Affiliate is not utilizing the applicable Metagenomi Licensed Collaboration Technology or Moderna Licensed Collaboration Technology with respect to the activity that would otherwise be restricted under this Section 5.21 (DT Exclusivity).

5.22 **DT Co-Co Target Exclusivity**. During the Term of this Agreement, except as otherwise required under this Agreement, Metagenomi and its Affiliates shall not, itself or with or through any Third Party, nor authorize, (sub)license (including granting any option thereto) or otherwise enable any Third Party to, directly or indirectly, design, identify, research, manufacture, develop, commercialize or otherwise exploit in the DT Field any candidate or product Directed Against the DT Co-Co Target, or any Guide or Donor Template specific to any DT Co-Co Candidates or DT Co-Co Products (and, for clarity, excluding Guides and general homology of Donor Templates that are used generally to knock-in a gene but are not specific to the corresponding target). [***]. For clarity, Metagenomi's obligations under this Section 5.22 (DT Co-Co Target Exclusivity) shall continue to apply in the event Metagenomi exercises its Opt-Out Right under Section 6.8 (Opt-Out Right). Notwithstanding anything herein to the contrary, in the event Moderna exercises its Opt-Out Right under Section 6.8 (Opt-Out Right), its obligations under this Section 5.22 (DT Co-Co Target Exclusivity) with respect to the DT Co-Co Target and the DT Co-Co Products in the DT Co-Co Program shall terminate, effective as of the applicable Opt-Out Date. The obligations and restrictions in this Section 5.22 (DT Co-Co Target Exclusivity) shall not apply to a New Affiliate of a Party, provided that such New Affiliate is not utilizing the Metagenomi Licensed Collaboration Technology or the Moderna Licensed Collaboration Technology with respect to the activity that would otherwise be restricted under this Section 5.22 (DT Co-Co Target Exclusivity).

5.23 **Manufacture**. Except as expressly set forth otherwise in this Agreement or in any Program Plan, Moderna shall be responsible for Manufacturing and supply of all non-GMP and GMP mRNA Constructs and LNP formulated Candidates and Products for all Research, Development, and Commercialization activities contemplated under this Agreement or any Program Plan. All decisions concerning such Manufacturing are within the sole discretion of

Moderna. Upon the first DC Nomination under a given DT Co-Co Program, the Parties shall enter a supply agreement to facilitate the activities related to clinical supply contemplated under the applicable Development Plan (a "**Clinical Supply Agreement**"). No later than [***] prior to the anticipated First Commercial Sale of a DT Co-Co Product in the Territory, the Parties shall enter a supply agreement to facilitate the activities related to commercial supply contemplated under the applicable Commercialization Plan (a "**Commercial Supply Agreement**"). The Parties may also enter to one or more quality agreements in conjunction with the foregoing. [***]. Notwithstanding anything herein to the contrary, Moderna may in its sole discretion cease performance of the Manufacturing activities (including any related CMC Activities), if Moderna determines in its sole discretion that there is a Safety Concern with respect to a DT Co-Co Product or Metagenomi Licensed DT Co-Co Technology.

5.24 **Government Approvals**.

5.24.1 **Efforts**. Each Party will use its commercially reasonable good faith efforts to eliminate any concern on the part of any Governmental Authority regarding the legality of the RT License or the DT License prior to their becoming effective, under any Antitrust Law, including, if required by federal or state antitrust authorities, promptly taking commercially reasonable steps to secure government antitrust clearance, including cooperating in good faith with any government investigation, including by making an appropriate response to any request (including a second request) by a Governmental Authority for documents or information. Notwithstanding the foregoing, this Section 5.24.1 (Efforts) and the term "commercially reasonable good faith efforts" do not require that either Party (a) offer, negotiate, commit to or effect, by consent decree, hold separate order, trust or otherwise, the sale, divestiture, license or other disposition of any capital stock, assets, rights, products or businesses of either Party or their respective Affiliates, (b) agree to any restrictions on the businesses of either Party or their respective Affiliates, or (c) pay any amount or take any other action to prevent, effect the dissolution of, vacate, or lift any decree, order, judgment, injunction, temporary restraining order, or other order in any suit or proceeding that would otherwise have the effect of preventing or delaying the transactions contemplated by the RT License or the DT License. For purposes of this Section 5.24 (Government Approvals), "**Antitrust Laws**" means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules and regulations promulgated thereunder (the "**HSR Act**"), and any other laws of the U.S. (or a state or territory thereof) or any other Governmental Authority that are designed to prohibit, restrict or regulate actions having the purpose or effect of monopolization or restraint of trade.

5.24.2 **Antitrust Filings**. On a Program-by-Program basis, at the written request of Moderna during the applicable RT Option Period or DT Option Period, each Party will, or will cause their applicable Affiliate(s) to, prepare and file with the U.S. Federal Trade Commission ("**FTC**") and the Antitrust Division of the U.S. Department of Justice ("**DOJ**") any HSR Filing required of such Party under the HSR Act and any other filings, notices, applications or other submissions required of such Party under Antitrust Laws (collectively, "**Antitrust Filings**"), in each case the necessity of which has been determined in the reasonable opinion of Moderna with respect to the transactions contemplated by a RT License or DT License with respect to such Program. The Parties will cooperate with one another to the extent necessary in the preparation of any such Antitrust Filings. Each Party will be responsible for its own costs, expenses, and filing fees associated with any Antitrust Filing; provided, further, that the Parties will equally share all

fees (other than penalties that may be incurred as a result of actions or omissions on the part of a Party, which penalties will be the sole financial responsibility of such Party) required to be paid to any Governmental Authority in connection with making any such Antitrust Filing. In the event that the Parties make any Antitrust Filing(s) under this Section 5.24.2 (Antitrust Filings), but (a) FTC or DOJ obtains a preliminary injunction under the HSR Act against the Parties to enjoin the transactions contemplated by the RT License or the DT License, as applicable, or any other Governmental Authority enjoins the transactions contemplated by the RT License or the DT License, as applicable, in accordance with Antitrust Laws, or (b) the HSR Clearance Date has not occurred and any other applicable antitrust clearances have not been obtained on or prior to three hundred and sixty-five (365) days after the beginning of the RT Option Period or the DT Option Period, as applicable, then within thirty (30) days after the earlier to occur of (a) or (b), Moderna may exercise the RT Option or the DT Option, as applicable, again, with respect to a different RT Target or a different DT Moderna Target, as applicable, and the applicable RT Preclinical Research Program or DT Moderna Research Program will continue. Notwithstanding anything to the contrary contained herein, except for the terms and conditions of this Section 5.24.2 (Antitrust Filings), the RT License or the DT License (including any and all of Moderna's obligations, including payment obligations, thereunder), will not be effective until the "**License Effective Date**," which is agreed and understood to mean the later of (i) the applicable RT Option Exercise Date or DT Option Exercise Date, or (ii) if a determination is made by Moderna pursuant to this Section 5.24.2 (Antitrust Filings) that any Antitrust Filing(s) is required, the receipt of any such required antitrust clearance(s). As used herein: (1) "**HSR Clearance Date**" means the earliest date that all applicable waiting periods under the HSR Act with respect to the transactions contemplated by the applicable RT License or DT License have expired or have been terminated; and (2) "**HSR Filing**" means a filing by the Parties or their ultimate parent entities as that term is defined in the HSR Act with the FTC and the DOJ of a Notification and Report Form for Certain Mergers and Acquisitions (as that term is defined in the HSR Act) with respect to the matters under the applicable RT License or DT License together with all required documentary attachments thereto.

5.24.3 **Information Exchange**. Each Party will, in connection with any Antitrust Filing: (a) reasonably cooperate with each other in connection with any communication, filing or submission and in connection with any investigation or other inquiry, including any proceeding initiated by a private party; (b) keep the other Party or its counsel informed of any communication (and if in writing, provide a copy to the other Party or its counsel) received by such Party from or given by such Party to the FTC, the DOJ or any other Governmental Authority or in connection with any proceeding by a private party, in each case regarding the transactions contemplated by any RT License or DT License; (c) consult with each other in advance of any meeting or conference with the FTC, the DOJ or any other Governmental Authority or, in connection with any proceeding by a private party, with such private party, and to the extent permitted by the FTC, the DOJ or such other Governmental Authority or such private party, give the Parties or their counsel the opportunity to attend and participate in such meetings and conferences; and (d) permit the other Party or its counsel to review in advance any submission, filing or communication (and documents submitted therewith) intended to be given by it to the FTC, the DOJ or any other Governmental Authority, or, in connection with any proceeding by a private party, to such private party; provided, that (i) materials may be redacted to remove references concerning the valuation of the business of Moderna or any Program, and (ii) neither Party is required to share with the other Party its HSR Filing and the documents produced by such Party in response to Items 4c or 4d of its HSR Filing. The Parties, as each deems advisable and necessary, may designate any

competitively sensitive material to be provided to the other under this Section 5.24.3 (Information Exchange) as "Antitrust Counsel Only Material". Such materials and the information contained therein will be given only to the outside antitrust counsel of the recipient and will not be disclosed by such outside counsel to employees, officers or directors of the recipient unless express permission is obtained in advance from the source of the materials (Moderna or Metagenomi, as the case may be) or the applicable Party's legal counsel.

5.24.4 **Assistance**. Subject to this Section 5.24 (Government Approvals), at the reasonable request of Moderna, the Parties will cooperate and use respectively all reasonable efforts to make all other registrations, filings and applications, to give all notices and to obtain as soon as practicable all governmental or other consents, transfers, approvals, orders, qualifications, authorizations, permits and waivers, if any, and to do all other things necessary or desirable for the consummation of the transactions as contemplated by an RT License or DT License in accordance with applicable Antitrust Laws.

5.25 **Payments**. Payments payable under this Article 5 (Licenses; Exclusivity; Manufacture) shall be invoiced by the Party entitled to such payment on a [***] basis to the other Party by delivering an invoice to the other Party within [***] after the end of each applicable Calendar Quarter for the payment due in connection with such Calendar Quarter. No later than [***] after receipt of any such invoice from such Party, the other Party shall make payment of undisputed invoiced amounts for such Calendar Quarter.

Article 6
COLLABORATION ACTIVITIES

6.1 **Lead Party**. Subject to the remainder of this Article 6 (Collaboration Activities) and Article 2 (Governance And Joint Steering Committee), with respect to the DT Co-Co Program and DT Co-Co Products, the Parties acknowledge and agree that each respective Party will lead the following activities (the "**Lead Party**"):

6.1.1 **Moderna as Lead Party**. Moderna shall be the Lead Party for the following in the Ex-U.S. countries: Development (including Clinical Trials), Medical Affairs, Regulatory Filings and Commercialization activities related to DT Co-Co Products.

6.1.2 **Metagenomi as Lead Party**. Metagenomi shall be the Lead Party for Development (including Clinical Trials but subject to Section 2.10.2(a) (Decision-making for DT Co-Co Plans)), Medical Affairs, Regulatory Filings and Commercialization activities related to DT Co-Co Products solely in the U.S.; provided that Moderna may appoint [***] of all medical science liaisons in accordance with Section 6.6.2 (Performance of Medical Affairs) and fifty percent (50%) of the deployed Sales Force in the U.S.

6.2 **DT Co-Co Plans**.

6.2.1 Promptly after the Effective Date, the Parties shall establish a program to discover, Research, Develop and Commercialize DT Co-Co Products within the DT Field Directed Against the DT Co-Co Target (the "**DT Co-Co Program**"). To that end, the Parties shall jointly propose, as applicable, (i) a research plan and budget (the "**DT Co-Co Research Budget**") detailing principal discovery and Research activities to be undertaken by both Parties in the

discovery and Research of DT Co-Co Candidates, which includes the criteria for DC Nomination (the "**DT Co-Co Research Plan**"); (ii) on a DT Co-Co Product-by-DT Co-Co Product basis, for clarity, subsequent to DC Nomination, a Development plan and budget detailing principal Development objectives and the activities to be undertaken by both Parties in the Development of such DT Co-Co Product in the Territory (the "**Development Plan**"); (iii) on a DT Co-Co Product- by-DT Co-Co Product basis, a written plan for the specific Medical Affairs activities to be performed by the Parties for such DT Co-Co Product in the Territory (the "**Medical Affairs Plan**"); and (iv) on a DT Co-Co Product-by-DT Co-Co Product basis, if applicable, a global Commercialization Plan for such DT Co-Co Product (the "**Commercialization Plan**"; together with the DT Co-Co Research Plan, the Development Plan(s) and the Medical Affairs Plan(s), the "**DT Co-Co Plans**"). Each DT Co-Co Plan shall include: (a) the responsibilities of the Parties, and (b) a timeline showing the key activities and timeframes in which such activities are expected to be completed. The initial DT Co-Co Research Plan appended in **Schedule O** (DT Co-Co Research Plan) shall be presented by the Parties to the JSC for approval within [***] after the Effective Date.

6.3 **DT Co-Co Product Research Activities**.

6.3.1 **DT Co-Co Research Plan**. The initial DT Co-Co Research Plan shall be reviewed by the JRC and presented to the JSC for approval. Each Party will have the right to propose modifications or amendments to the DT Co-Co Research Plan, provided that any modifications or amendments to the DT Co-Co Research Plan shall be subject to review by the JRC and approval by the JSC. Each Party shall use Commercially Reasonable Efforts to perform and complete (itself or through its Affiliates or by permitted subcontracting) its obligations under the DT Co-Co Research Plan. Neither Party shall be required to perform any work which is not contemplated by the DT Co-Co Research Plan, unless such additional work is reflected in a mutually agreed amendment to the DT Co-Co Research Plan. Without limiting the JRC's rights to review and discuss and the JSC's rights to approve the DT Co-Co Research Plan and update thereto, the Party to whom a particular Research activity is allocated under the DT Co-Co Research Plan shall have the right, without seeking JRC review or JSC approval, to make operational decisions with respect to the performance of such Research activity to the extent consistent with the then-current DT Co-Co Research Plan. Without limiting the generality of the foregoing, each Party shall use Commercially Reasonable Efforts to reach a DC Nomination during the Initial DT Co-Co Research Term.

If there is no DC Nomination by the end of the Initial DT Co-Co Research Term, the DT Co-Co Program will expire at the end of the Initial DT Co-Co Research Term, regardless of whether Moderna has exercised its Opt-Out Right with respect to such DT Co-Co Program prior to the end of the Initial DT Co-Co Research Term, unless the Parties have expressed their mutual wish to continue with the DT Co-Co Program and negotiated and agreed on whether to revise the DT Co-Co Research Plan, in each case prior to the end of the Initial DT Co-Co Research Term. After the expiration of the DT Co-Co Program, neither Party shall use, nor allow or enable any others to use, any Program Technology specific to the DT Co-Co Target in such DT Co-Co Program in the DT Field for [***], provided that the foregoing shall not apply to Moderna in the event it has exercised its Opt-Out Right prior to the expiration of the DT Co-Co Program.

6.3.2 **Eligible Co-Co Research Costs**. Subject to the last sentence of Section 7.3 (Research Funding), the Parties shall share [***] the Eligible Co-Co Research Costs of all Research activities incurred by or on behalf of either Party that are set forth in the DT Co-Co Research Budget; provided that to the extent that any Research Budget Overspend is not an Allowable Overrun, within [***] after the end of the appliable Calendar Quarter, the JSC shall determine if such Overspend was caused by circumstances within the relevant Party's reasonable control, then, unless otherwise approved by the JSC, such Party shall be solely responsible for such Overspend (and the other Party shall not be responsible for any portion of such Overspend), and if the JSC determines that such Overspend was caused by circumstances outside of the relevant Party's reasonable control or is otherwise approved by the JSC, then each Party shall be responsible for [***] of the Overspend.

6.4 **DT Co-Co Product Development Activities**.

6.4.1 **Overview**. The Lead Party shall lead the conduct of each standalone Clinical Trial in its respective Region with respect to the DT Co-Co Products in the Territory. In the case of international multi-site Clinical Trials involving at least one site in each of the U.S. and at least one country Ex-U.S., the Parties will discuss and agree which Party would lead the conduct for such Clinical Trial taking into consideration the capabilities of each Party to operationally lead such Clinical Trial. Except as expressly set forth otherwise in the Development Plan, Moderna shall be responsible for all CMC Matters and Manufacturing related to the clinical supply of DT Co-Co Products. Notwithstanding anything to the contrary in this Agreement, the Parties may elect to conduct Development activities jointly and allocate specific operational activities in accordance with the Development Plan.

6.4.2 **Diligence**. Moderna and Metagenomi shall each use Commercially Reasonable Efforts to perform all obligations allocated to such Party under each Development Plan for each DT Co-Co Product in the Territory. The applicable Development Plan shall specify which Party shall lead the conduct of each Clinical Trial set forth in the applicable Development Plan and all Clinical Trials and Development activities shall be conducted as set forth in the Development Plan for each DT Co-Co Product in the Territory. Subject to Section 6.4.7 (New Development) and Section 6.4.8 (Combination Products), the Parties shall not perform any Development activities in the Territory for any formulation, Indication, or Combination Product with respect to any DT Co-Co Product other than those formulations, Indications, or Combination Products set forth in the applicable Development Plan in accordance with this Agreement.

6.4.3 **Development Plans**. The initial Development Plan, which will set forth in reasonable detail the anticipated Development activities for the applicable DT Co-Co Products in the Territory and the corresponding Development Budget, shall be reviewed by the JDC and presented to the JSC for approval. Subject to comments and proposed changes by the other Party, each Party will be responsible for the Development Plan for such Party's respective Region. The development plans for each Region will be incorporated into the overall Development Plan. On at least a [***] basis during the Term (or more frequently as may be required), the JDC shall review and update each Development Plan and corresponding Development Budget based on the currently available information and data, including to add (a) any New Collaboration Development Activities that have not yet been included in the Development Plan and Development Budget for a DT Co-Co Product, including the proposed timelines and budget for such New Collaboration Development Activities set forth in the applicable New Development Proposal approved by JDC (as may be amended by the JDC), or (b) any applicable new formulations or Indications pursuant

to Section 6.4.7(a) (New Development Activities) or new Combination Products proposed by the JDC in accordance with Section 6.4.8 (Combination Products). The JDC shall review, discuss, and determine whether to present any such update to any Development Plan or Development Budget for approval by the JSC. Each such update to a Development Plan and corresponding Development Budget shall become effective and shall supersede the previous Development Plan and corresponding Development Budget upon approval thereof by the JSC. Notwithstanding any provision to the contrary set forth in this Agreement, if either Party proposes to include Development activities for a DT Co-Co Product for a particular formulation or Indication in the applicable Development Plan because those Development activities are required or requested by a Regulatory Authority in the Territory, then the JSC shall approve the inclusion of such Development activities in the applicable Development Plan (and corresponding Development Budget). Without limiting the JDC's rights to review and discuss and the JSC's rights to approve each Development Plan and update thereto, the Party to whom a particular Development activity is allocated under the Development Plan shall have the right, without seeking JDC review or JSC approval, to make operational decisions with respect to the performance of such Development activity to the extent consistent with the then-current Development Plan.

6.4.4 **Development Cost Sharing**.

(a) **Eligible Development Costs**. The Parties shall [***] the Eligible Development Costs of all Development activities for DT Co-Co Products in the Territory incurred by or on behalf of either Party that are set forth in the Development Budget; provided that to the extent that any Development Budget Overspend is not an Allowable Overrun, within [***] after the end of the appliable Calendar Quarter, the JSC shall determine if such Overspend was caused by circumstances within the relevant Party's reasonable control, then, unless otherwise approved by the JSC, such Party shall be solely responsible for such Overspend (and the other Party shall not be responsible for any portion of such Overspend), and if the JSC determines that such Overspend was caused by circumstances outside of the relevant Party's reasonable control or is otherwise approved by the JSC, then each Party shall be responsible for [***] of the Overspend.

(b) **Quarterly Reconciliation of Development Costs for DT Co-Co Products**. With respect to each DT Co-Co Product, no later than [***] after the end of each Calendar Quarter, each Party shall deliver to the other Party a written report of the Eligible Development Costs incurred by or on behalf of such Party in connection with the performance of Development activities during such Calendar Quarter (for Moderna, the "**Moderna Development Cost Share Notice**" and for Metagenomi, the "**Metagenomi Development Cost Share Notice**"). For each Calendar Quarter:

(i) If the actual amount set forth in the Metagenomi Development Cost Share Notice exceeds the actual amount set forth in the Moderna Development Cost Share Notice, then no later than [***] after Moderna's receipt of the Metagenomi Development Cost Share Notice for such Calendar Quarter, Moderna shall pay to Metagenomi [***] of the difference between the actual amount set forth in the Metagenomi Development Cost Share Notice and the actual amount set forth in the Moderna Development Cost Share Notice for such Calendar Quarter, such that each Party bears [***] of the aggregate Eligible Development Costs incurred by or on behalf of the Parties during such Calendar Quarter.

(ii) If the actual amount set forth in the Moderna Development Cost Share Notice exceeds the actual amount set forth in the Metagenomi Development Cost Share Notice, then no later than [***] after Metagenomi's receipt of the Moderna Development Cost Share Notice for such Calendar Quarter, Metagenomi shall pay to Moderna [***] of the difference between the actual amount set forth in the Moderna Development Cost Share Notice and the actual amount set forth in the Metagenomi Development Cost Share Notice for such Calendar Quarter, such that each Party bears [***] of the aggregate Eligible Development Costs incurred by or on behalf of the Parties during such Calendar Quarter.

6.4.5 **Development Reports**. At each JDC meeting, (a) Moderna and Metagenomi shall each provide the JDC with a written report summarizing the Development activities for the DT Co-Co Products conducted by or on behalf of each Party since the last JDC meeting, including (i) patient enrollment and the ongoing status of all Clinical Trials, in each case, under any Development Plan and (ii) the status of each pending and proposed Regulatory Filing set forth in the Development Plan for each DT Co-Co Product in the Territory, to the extent not already provided, and without limiting the obligations under Section 6.5 (Regulatory Affairs), (b) Metagenomi shall provide the JDC a summary of the progress and results of Metagenomi Development activities for the DT Co-Co Product, and (c) Moderna shall provide the JDC a summary of the progress and results of Moderna Development activities for the DT Co-Co Product. Each Party shall also promptly provide written notice to the other Party, through the JDC or Alliance Managers, of any significant Development events in the Territory (*e.g.*, Clinical Trial initiation or completion, clinical holds, and Regulatory Approvals) that the reporting Party reasonably believes is of interest to the other Party.

6.4.6 **Assumed Development Activities**. If either Party has defaulted on its obligations to perform one or more Development activities allocated to such Party under a Development Plan in a manner that delays the performance of such matters for a period of more than [***] beyond the timeline set forth in such Development Plan, then the other Party shall provide such defaulting Party with written notice regarding such failure to perform, and upon receipt of such notice the defaulting Party shall have a [***] period to commence the performance of such Development activities in accordance with the terms hereof and the applicable Development Plan (the "**Development Activities Cure Period**"), in any case subject to Section 6.5.1(c) (CMC Matters). If (a) the defaulting Party has not commenced performance of such Development activities during the applicable Development Activities Cure Period, (b) the defaulting Party notifies the non-defaulting Party in writing that the defaulting Party anticipates that it shall be unable to perform such Development activities, or (c) the defaulting Party does not perform such Development activities in accordance with the applicable Development Plan or otherwise in accordance with this Section 6.4 (DT Co-Co Product Development Activities), within a reasonable period of time in accordance with the terms hereof, then, in each case ((a)-(c)), the non-defaulting Party may, upon written notice to the defaulting Party, assume those Development activities that are the subject of such default by the defaulting Party (the "**Assumed Development Activities**"). In connection with the defaulting Party's failure to perform such activities or default of such obligations and the non-defaulting Party's assumption thereof:

(a) the defaulting Party shall work collaboratively and in good faith with the non-defaulting Party, and make its personnel reasonably available to the non-defaulting Party, in each case, in order to (a) transfer of any applicable technology, materials, or contracts with subcontractors to the other Party that are necessary or reasonably useful for the performance of the applicable Assumed Development Activities, and (b) provide such other assistance so as to enable the non-defaulting Party to assume performance of the applicable Assumed Development Activities;

(b) the non-defaulting Party shall thereafter have the right to make operational decisions with respect to the performance of such Assumed Development Activities to the extent consistent with the then-current Development Plan;

(c) the JDC shall update the applicable Development Plan to allocate performance of the Assumed Development Activities to the non-defaulting Party; and

(d) for the avoidance of doubt, Eligible Development Costs incurred in connection with the performance of Assumed Development Activities shall be shared [***] by the Parties as set forth in Section 6.4.4(a) (Eligible Development Costs).

6.4.7 **New Development**.

(a) **New Development Activities**. If either Party proposes to Develop in the Territory, (a) a new formulation of any DT Co-Co Product or (b) any DT Co-Co Product for a new Indication (including any different patient population or line of therapy, which shall be deemed to be a different Indication for purposes of this Section 6.4.7 (New Development)), in each case ((a) and (b)), other than the formulations and Indications set forth in the applicable Development Plan for such DT Co-Co Product ((a) and (b), "**New Development**"), then the proposing Party shall present to the JDC, to review and discuss, a proposal to add such New Development to the Development Plan, for the applicable DT Co-Co Product, including the countries in which such activities would be conducted and the allocation of performance of such activities between the Parties (a "**New Development Proposal**"). Each New Development Proposal shall describe in reasonable detail the applicable non-clinical studies, pre-clinical studies, and Clinical Trials, in each case, that the proposing Party desires to conduct as part of such New Development, including a synopsis of the trial or activities, the proposed enrollment criteria, the number of patients to be included, the endpoints to be measured, and the statistical design and powering (the "**New Development Activities**"), as well as a proposed timeline and budget and an analysis of the business opportunity and revenue potential for such New Development Activities.

(b) **JDC and JSC Decision Regarding New Development Activities**. No later than sixty (60) days after receipt thereof from the proposing Party, the JDC shall review, discuss, and determine whether to present to the JSC for approval, each New Development Proposal.

(c) If the JSC approves a New Development Proposal, upon such an approval, then: (i) the New Development Activities set forth in such New Development Proposal shall be deemed "**New Collaboration Development Activities**" for purposes of this Agreement and (ii) the JDC shall update the Development Plan for such DT Co-Co Product to include such New Collaboration Development Activities for those countries agreed by the JSC, including the proposed timelines and budget, in each case, for such New Development Activities set forth in such New Development Proposal (as may be amended by the JDC and approved by the JSC). Any

New Development Activities included in a Development Plan pursuant to this Section 6.4.7 (New Development) shall be deemed to be Development activities for all purposes under this Section 6.4 (DT Co-Co Product Development Activities). If the JSC does not approve a New Development Proposal, then the New Development Activities proposed in the New Development Proposal shall not be included in any Development Plan, and the proposing Party shall not conduct such New Development Activities in the Territory.

6.4.8 **Combination Products**. [***].

6.4.9 **Standards of Conduct; Development Records**. Moderna and Metagenomi shall perform, and each shall ensure that their Affiliates and licensees and permitted sublicensees (as applicable), and subcontractors perform, all Development activities under each Development Plan, as the case may be, in a good scientific manner, in accordance with GLP, GMP, and GCP, as applicable, and in compliance with Applicable Laws. Each Party and its Affiliates shall maintain written or electronic records, in sufficient detail, in a good scientific manner (in accordance with GLP, GCP, and GMP, as applicable), and appropriate for regulatory and patent purposes, and that are complete and accurate in all material respects and reflect all Development work performed and results achieved, in each case, by or on behalf of such Party and its Affiliates under this Agreement.

6.4.10 **Access to Data**. In addition to its adverse event and safety data reporting obligations set forth in Section 6.5.7 (Pharmacovigilance and Adverse Event Reporting), each Party shall promptly provide the other Party with copies of all data and results and all supporting documentation (*e.g.*, protocols, Investigator's Brochures, case report forms, analysis plans) Controlled by such Party that are generated by or on behalf of such Party or its Affiliates, sublicensees, or subcontractors, if applicable, in the Development of each DT Co-Co Product, to the extent necessary or reasonably useful for the performance of the other Party's Development activities.

6.5 **Regulatory Affairs**.

6.5.1 **Regulatory Responsibilities**.

(a) **Territory**. Pursuant to the Development Plan, the Parties shall collaborate on a regulatory strategy for DT Co-Co Products in the Territory, subject to Section 6.5.1(c) (CMC Matters). The JDC shall review and discuss, the overall strategy for obtaining, supporting, and maintaining Regulatory Approval of each DT Co-Co Product in the Territory (which strategy shall be reflected in each Development Plan) and the JDC shall oversee the implementation of and discuss the progress regarding the same.

(b) **Regulatory Responsibilities**. Subject to [***] and on a Region-by-Region basis, the Regulatory Responsible Party shall lead all regulatory matters relating to the DT Co-Co Products in accordance with the Development Plan. The Regulatory Responsible Party may file for in its name, and shall own, all Regulatory Documentations with respect to each DT Co-Co Product in the applicable country in the Region. Subject to this Section 6.5 (Regulatory Affairs) and on a Region-by-Region basis, the Regulatory Responsible Party shall have the sole right to (a) oversee, monitor, and coordinate all regulatory actions, communications and filings with, and

submissions to, each Regulatory Authority in the Region with respect to each DT Co-Co Product; (b) interface, correspond, and meet with each Regulatory Authority in the Region with respect to each DT Co-Co Product; and (c) seek and maintain all Regulatory Approvals in the Region with respect to each DT Co-Co Product. In addition, notwithstanding any provision to the contrary set forth in this Agreement, the Regulatory Responsible Party shall (i) not be required to delay any actions, communications, or filings with, or submissions to any Regulatory Authorities in the Region in a manner that affects such Regulatory Responsible Party's ability to comply with any Regulatory Authority requirement or deadline or Applicable Laws in the Territory or that would delay receipt of Regulatory Approval for a DT Co-Co Product in the Territory and (ii) have final say on the content of all Regulatory Filings (including Material Communications) with Regulatory Authorities in the Region.

(c) **CMC Matters**. Notwithstanding anything to the contrary in this Agreement: (i) Moderna shall be solely responsible for all CMC Matters under this Agreement;

(i) Moderna is not required to disclose to Metagenomi or any of its Affiliates any CMC Matters or any information related to the design of mRNA Constructs (including any applicable bioinformatics technology); and (iii) unless authorized in writing by Moderna, Metagenomi or its Affiliates shall not have the right to access, review, use, copy, distribute or retain any Moderna's Confidential Information related to CMC Matters or the design of mRNA Constructs (including any applicable bioinformatics technology). In the event Metagenomi or any of its Affiliates receive any knowledge or information regarding CMC Matters or the design of mRNA Constructs related to this Agreement from a Regulatory Authority or another Third Party, Metagenomi or its Affiliates shall immediately convey such knowledge or information directly to Moderna and promptly and properly delete or destroy all records and documentation regarding any such CMC Matters or mRNA Construct design in its possession, or return them to Moderna, in each case as instructed by Moderna in writing.

(d) **Cooperation and Coordination**. At the Regulatory Responsible Party's request, the other Party shall diligently cooperate with the Regulatory Responsible Party in connection with any Regulatory Filings and other regulatory compliance related activities with respect to the DT Co-Co Products, including harmonization of any Regulatory Documentation and Regulatory Filings.

6.5.2 **Communications with Regulatory Authorities**.

(a) **Prompt Disclosures**. Subject to Section 6.5.1(c) (CMC Matters), each Party shall inform the other Party within [***], or such shorter time as is necessary to comply with the reporting requirements of any applicable Regulatory Authority or under Applicable Laws, of notification of any action by, or notification or other information that it receives (directly or indirectly) from any Regulatory Authority in the Territory to the extent such information: (a) raises any material concerns regarding the safety or efficacy of a DT Co-Co Product; (b) indicates or suggests a potential material liability of either Party to Third Parties in connection with a DT Co-Co Product; (c) is reasonably likely to lead to a clinical hold, recall, market withdrawal, or field alert with respect to a DT Co-Co Product; or (d) relates to expedited and periodic reports of adverse events with respect to a DT Co-Co Product, or DT Co-Co Product complaints, and may have an adverse impact on the receipt or maintenance of Regulatory Approval or the continued

Commercialization of a DT Co-Co Product. The Parties shall reasonably cooperate with and assist each other in complying with regulatory obligations and communications, including by providing to the applicable Regulatory Responsible Party, within two (2) Business Days after a request, such information and documentation that is in the other Party's possession as may be necessary or helpful for such Regulatory Responsible Party to prepare a response to an inquiry from a Regulatory Authority in the Territory with respect to a DT Co-Co Product. Each Party shall also promptly provide the other Party with a copy of all correspondence received from a Regulatory Authority in the Territory specifically regarding the matters referred to above.

(b) **Other Material Communications**. To the extent not provided pursuant to Section 6.5.2(a) (Prompt Disclosures), subject to Section 6.5.1(c) (CMC Matters), and on a Region-by-Region basis, the Regulatory Responsible Party shall provide the JDC for its review and discussion a brief description in English of the principal issues raised in each Material Communication with Regulatory Authorities with respect to any DT Co-Co Product in the Region promptly after receipt thereof, but in any event within fifteen (15) Business Days after receipt thereof. The Regulatory Responsible Party shall allow the other Party a reasonable opportunity to review and comment on the Regulatory Responsible Party's proposed response to any Material Communications with any Regulatory Authority in the Region with respect to any DT Co-Co Product in advance of the transmission of such response, and the Regulatory Responsible Party shall reasonably consider all comments timely provided by the other Party in connection therewith.

(c) **Other Disclosures**. In addition to its obligations under this Agreement, each Party shall promptly disclose to the other Party the following regulatory information, subject to Section 6.5.1(c) (CMC Matters):

(i) **Regulatory Actions**. All material information Controlled by such Party pertaining to actions taken by Regulatory Authorities related to a DT Co-Co Product in the Territory, including any notice, audit notice, notice of initiation by Regulatory Authorities of investigations, inspections, detentions, seizures, or injunctions concerning a DT Co-Co Product in the Territory, notice of violation letter (*i.e.*, an untitled letter), warning letter, service of process, or other inquiry; provided that a Party shall be entitled to redact those portions thereof to the extent not related to a DT Co-Co Product.

(ii) **Regulatory Non-Compliance**. All information Controlled by such Party pertaining to notices from Regulatory Authorities in the Territory of non-compliance with Applicable Laws in connection with a DT Co-Co Product, including receipt of a warning letter or other notice of alleged material non-compliance from any Regulatory Authority relating to a DT Co-Co Product; provided that a Party shall be entitled to redact those portions thereof to the extent not related to a DT Co-Co Product.

6.5.3 **Regulatory Meetings**. The Regulatory Responsible Party shall provide the other Party with reasonable advance notice of all substantive meetings with the Regulatory Authorities in the applicable Region pertaining to the DT Co-Co Product, or with as much advance notice as practicable under the circumstances. Upon the other Party's request, the Regulatory Responsible Party shall include the other Party in the preparation and strategy for such substantive meeting and in any discussions and actions relating to the outcome thereof. Notwithstanding any provision to the contrary set forth in this Section 6.5.3 (Regulatory Meetings), (a) if required by

the applicable Regulatory Authority at any meeting with such Regulatory Authority, then attendance by the other Party shall be permitted; (b) attendance by the representatives of the other Party shall not prevent participation of a representative of the Regulatory Responsible Party for the applicable DT Co-Co Product due to restrictions imposed by Regulatory Authorities on the number of attendees; and (c) the Regulatory Responsible Party for the applicable DT Co-Co Product shall not be obligated to change the schedule of such meeting in order to accommodate the schedule of the other Party's representatives. The non-Regulatory Responsible Party shall strictly follow the applicable Regulatory Responsible Party's instructions with respect to any such meeting that it attends, and shall not discuss the contents of any such meeting with any Third Party or Regulatory Authority except as required by Applicable Laws or authorized by the Regulatory Responsible Party in writing. If either Party requires an interpreter or other translation services in connection with its participation in any such meeting with Regulatory Authorities, then the requiring Party shall be responsible for the costs of such translation services.

6.5.4 **Regulatory Filings**.

(a) **Regulatory Filings**. Subject to Section 6.5.1(c) (CMC Matters), the Regulatory Responsible Party for each Region shall provide the other Party with a copy of all proposed Regulatory Filings to be filed with or submitted to any Regulatory Authority in the Region for the applicable DT Co-Co Product for the other Party's review and comment sufficiently in advance of, but in any event, unless not practicable, at least [***] prior to, the Regulatory Responsible Party's filing or submission thereof, and the Regulatory Responsible Party for the Region shall reasonably consider incorporating any reasonable comments received from the other Party into such Regulatory Filings.

(b) **Other Submissions**. In addition, the Regulatory Responsible Party for each Region shall provide the other Party with written notice of each of the following events with regard to each applicable DT Co-Co Product throughout the Region (to the extent not already provided pursuant to Section 6.5.4(a) (Regulatory Filings)), subject to Section 6.5.1(c) (CMC Matters): within a reasonable period of time, but in any event, unless not practicable, at least [***], following the occurrence thereof (a) the submission of any applications for Regulatory Approval of such DT Co-Co Product to any Regulatory Authority in the Region, and (b) receipt of or denial of Regulatory Approval for such DT Co-Co Product (or inquiries from the applicable Regulatory Authority related to the Regulatory Approval process); provided that the Regulatory Responsible Party shall inform the other Party of any such event under (a) or (b) prior to public disclosure of such event by the other Party.

(c) **CMC Filings**. Notwithstanding anything to the contrary in this Section 6.5 (Regulatory Affairs), Moderna shall be responsible for all CMC-related components of all Regulatory Filings for the DT Co-Co Products in the Territory. If not previously prepared and filed, Moderna will, at Metagenomi's written request, prepare and file with the FDA a DMF containing required CMC information for DT Co-Co Products in the U.S. Metagenomi and its Affiliates may refer to such DMF in any Regulatory Filing made in connection with obtaining or maintaining a Regulatory Approval for applicable DT Co-Co Product in the U.S. [***].

6.5.5 **Costs of Regulatory Affairs**. [***].

6.5.6 **Right of Reference**. Subject to the rules of the relevant Regulatory Authority and the terms of this Agreement, each Party hereby grants to the other Party a "Right of Reference," as that term is defined in 21 C.F.R. § 314.3(b) (or any successor rule or analogous Applicable Laws recognized outside of the U.S.) to, and a right to copy, access, and otherwise use, all information and data relating to the DT Co-Co Products in any Regulatory Filings or Regulatory Approval Controlled by such Party during the Term, solely for the other Party's or its Affiliates' use in the Development and Commercialization of the DT Co-Co Products in their respective Region during the Term in accordance with this Agreement. All such information and data contained in any such Regulatory Filings or Regulatory Approvals shall be considered Confidential Information of such Party and subject to the terms of Article 11 (Confidentiality). If requested by the other Party, such Party shall provide a signed statement to this effect in accordance with 21 C.F.R. § 314.50(g)(3) (or any successor rule or analogous Applicable Laws outside of the U.S.) to give effect to the intent of this Section 6.5.6 (Right of Reference).

6.5.7 **Pharmacovigilance and Adverse Event Reporting**. The Parties shall cooperate with regard to the reporting and handling of safety information involving the DT Co-Co Products in accordance with the Applicable Laws, regulatory requirements, and regulations on pharmacovigilance and clinical safety. The Regulatory Responsible Party for a DT Co-Co Product in a given Region shall be responsible for all processing of information related to any adverse events for such DT Co-Co Product for the Region. Each Party shall provide to the other Party the relevant safety information it receives (either directly or indirectly) related to a DT Co-Co Product within such time to ensure that all regulatory requirements and timelines are met in the respective territories. The Parties shall negotiate in good faith and enter into a Pharmacovigilance Agreement, which shall define the pharmacovigilance responsibilities of the Parties and include safety data exchange procedures governing the exchange of information affecting the DT Co-Co Products (*e.g.*, Serious Adverse Events, emerging safety issues) to enable each Party to comply with all of its legal and regulatory obligations related to such DT Co-Co Products (the "**Pharmacovigilance Agreement**"). Moderna shall own and maintain the global safety database for all DT Co-Co Products provided that the Pharmacovigilance Agreement shall provide Metagenomi access to such database and real time notifications and reporting of adverse events, as needed for pharmacovigilance obligations.

6.5.8 **Recalls, Withdrawal, or Field Alert of a DT Co-Co Product**.

(a) **Notification and Determination**. In the event that any Governmental Authority threatens in writing or initiates any action to remove a DT Co-Co Product from the market (in whole or in part) in the Territory, the Party receiving notice thereof shall notify the other Party of such communication immediately, but in no event later than two Business Days after receipt thereof. Notwithstanding the foregoing, in all cases the Regulatory Responsible Party for a DT Co-Co Product in a Region shall determine whether to initiate any recall, withdrawal, or field alert of such DT Co-Co Product in the applicable Region, including the scope of such recall or withdrawal (*e.g.*, a full or partial recall, or a temporary or permanent recall) or field alert. Before the Regulatory Responsible Party initiates a recall, withdrawal, or field alert for a DT Co-Co Product in a Region, as applicable, the Parties shall use reasonable efforts to promptly meet and discuss in good faith the reasons therefor, provided that such discussions shall not delay any action that such Regulatory Responsible Party reasonably believes should be taken in relation to any actual or potential recall, withdrawal, or field alert. In the event of any such recall, withdrawal, or

field alert, the Regulatory Responsible Party for the applicable Region shall determine the necessary actions to be taken and shall implement such action. Without limiting the foregoing, either Party shall have the right to propose that a recall, withdrawal, or field alert for a DT Co-Co Product should be initiated by such Party, but the Regulatory Responsible Party for the applicable Region shall have the right to make the final decision as to whether or not to initiate the recall, withdrawal, or field alert. Notwithstanding the foregoing, if a recall, withdrawal, or field alert is reasonably necessary due to a Manufacturing issue related to a DT Co-Co Product, Moderna shall promptly notify Metagenomi of such issue and provide relevant information on such Manufacturing issue. Upon written request by Moderna for such recall, withdrawal, or field alert, such request to include the scope of the recall or withdrawal, as applicable, Metagenomi (if Metagenomi is the Regulatory Responsible Party for the applicable Region), shall initiate such recall, withdrawal, or field alert in accordance with Moderna's request.

(b) **Cost Allocation**. [***].

6.6 **Medical Affairs**.

6.6.1 **Medical Affairs Plans**. No later than [***] before the submission of the first Regulatory Filing seeking the first Regulatory Approval for a DT Co-Co Product, the Medical Affairs Working Group shall prepare and submit to the JDC a Medical Affairs Plan for such DT Co-Co Product in the Territory for the following [***], including the corresponding Medical Affairs Budget. The Medical Affairs Plan shall contain a [***] rolling annual plan for the Medical Affairs activities for the DT Co-Co Product in the Territory. Subject to comments and proposed changes by the other Party, each Party will be responsible for the Medical Affairs Plan for its respective Region. The Medical Affairs Plans for each Region will be incorporated into the overall Medical Affairs Plan. The JDC shall prepare, review, discuss and determine whether to present each Medical Affairs Plan and Medical Affairs Budget, including the allocation of activities between the Parties set forth therein, to the JSC for approval. On an annual basis during the Term (or more frequently as may be required), the JDC shall review and update, or have a Party review and update, each Medical Affairs Plan and Medical Affairs Budget based on the currently available information and data, including for any applicable new formulations or Indications that that were added to a Development Plan pursuant to Section 6.4.7(b) (JDC and JSC Decision Regarding New Development Activities) or new Combination Products approved by the JSC in accordance with Section 6.4.8 (Combination Products), in each case, that are not included in the then-current Medical Affairs Plan for the applicable DT Co-Co Product. The JDC shall review and discuss and determine whether to present any such update to the Medical Affairs Plans and Medical Affairs Budgets to the JSC for approval. Each such update to a Medical Affairs Plan and corresponding Medical Affairs Budget shall become effective and shall supersede the previous Medical Affairs Plan and corresponding Medical Affairs Budget upon approval thereof by the JSC.

6.6.2 **Performance of Medical Affairs**. The Lead Party shall lead the performance of Medical Affairs activities in its respective Region for each DT Co-Co Product, and, without seeking JDC review or approval, shall have the right to make operational decisions with respect to the performance of such Medical Affairs activities to the extent consistent with the then-current Medical Affairs Plan provided that Moderna may appoint up to [***] of all medical science liaisons for the U.S. Notwithstanding anything to the contrary herein, the Parties may elect to conduct Medical Affairs activities jointly and allocate specific operational activities in

accordance with the Medical Affairs Plan. If a particular Medical Affairs activity is allocated to both Parties to perform jointly under a Medical Affairs Plan, then both Parties shall conduct such activity in collaboration with each other as directed by the JDC. Each Party shall use reasonable efforts in the Territory to cobrand all sponsorships, booths, and similar activities in accordance with branding terms set forth in the applicable Commercialization Plan and to the extent the same are solely related to the DT Co-Co Products and such cobranding is permitted under Applicable Laws.

6.6.3 **Medical Affairs Costs**. [***].

6.6.4 **Assumed Medical Affairs Activities**. If either Party has defaulted on its obligations to perform one or more Medical Affairs activities allocated to such Party under a Medical Affairs Plan in a manner that delays the performance of such matters for a period of more than [***] beyond the timeline set forth in such Medical Affairs Plan, then the other Party shall provide such defaulting Party with written notice regarding such failure to perform, and upon receipt of such notice the defaulting Party shall have a [***] period to commence the performance of such Medical Affairs activities in accordance with the terms hereof and the applicable Medical Affairs Plan (the "**Medical Affairs Activities Cure Period**"). If (i) the defaulting Party has not commenced performance of such Medical Affairs activities during the applicable Medical Affairs Activities Cure Period, (ii) the defaulting Party notifies the non-defaulting Party in writing that the defaulting Party anticipates that it shall be unable to perform such Medical Affairs activities, or (iii) the defaulting Party does not perform such Medical Affairs activities in accordance with the applicable Medical Affairs Plan or otherwise in accordance with this Section 6.6 (Medical Affairs), within a reasonable period of time in accordance with the terms hereof, then, in each case ((i)-(iii)), the non-defaulting Party may, upon written notice to the defaulting Party, assume those Medical Affairs activities that are the subject of such default by the defaulting Party (the "**Assumed Medical Affairs Activities**"). In connection with the defaulting Party's failure to perform such activities or default of such obligations and the non-defaulting Party's assumption thereof:

(a) the defaulting Party shall work collaboratively and in good faith with the non-defaulting Party, and make its personnel reasonably available to the non-defaulting Party, in each case, in order to (i) transfer of any applicable technology, materials, or contracts with subcontractors to the other Party that are necessary or reasonably useful for the performance of the applicable Assumed Medical Affairs Activities, and (ii) provide such other assistance so as to enable the non-defaulting Party to assume performance of the applicable Assumed Medical Affairs Activities;

(b) the non-defaulting Party shall thereafter have the right to make operational decisions with respect to the performance of such Assumed Medical Affairs Activities to the extent consistent with the then-current Medical Affairs Plan;

(c) the JDC shall update the applicable Medical Affairs Plan to allocate performance of the Assumed Medical Affairs Activities to the non-defaulting Party; and

(d) for the avoidance of doubt, Eligible Medical Affairs Costs incurred in connection with the performance of Assumed Medical Affairs Activities shall [***].

6.6.5 **Medical Affairs Updates**. At each meeting of the JDC, each Party shall provide to the applicable JDC a summary of the Medical Affairs activities performed by such Party for the DT Co-Co Products in the Territory during the period since the last JDC meeting.

6.6.6 **Standards of Conduct; Compliance**. Each Party shall perform, or shall ensure that each of its Affiliates, sublicensees, and subcontractors perform, all Medical Affairs activities in a professional and ethical business manner and in compliance with Applicable Laws, the Approved Labeling, and any applicable Medical Affairs Plan.

6.7 **Commercialization**.

6.7.1 **Commercialization Plan**. No later than [***] prior to the anticipated First Commercial Sale of a DT Co-Co Product in the Territory, Moderna and Metagenomi shall prepare and submit to the JCC, an initial Commercialization Plan for such DT Co-Co Product, which will set forth a reasonably detailed description of anticipated Commercialization activities for the applicable DT Co-Co Products in the Territory, including the corresponding Commercialization Budget. The Commercialization Plan shall also contain a [***] rolling annual plan for the global Commercialization activities for the DT Co-Co Product in the Territory and the Commercialization Budget shall include a [***] financial forecast reflecting reasonably anticipated Commercialization Costs in accordance with the Commercialization Plan. Subject to comments and proposed changes by the other Party, each Party will be responsible for the Commercialization Plan for its respective Region. The Commercialization Plans for each Region will be incorporated into the overall Commercialization Plan. The Commercialization Plan may discuss certain matters on an Indication-by-Indication basis and shall address (to the extent applicable given the stage of Commercialization and estimated anticipated First Commercial Sale) (a) the Product Marks, global usage guidelines for the Product Marks, global key positioning, and messaging strategy for such DT Co-Co Product in such Indication, and guidelines for the Product Materials prepared in accordance with Section 6.7.9 (Product Materials) and (b) the general pricing and market access strategy (including discounts, rebates and other price reductions) globally and for each DT Co-Co Product for such Indication in each country in the Territory. The JCC shall prepare, review, and discuss, and the JSC shall review, discuss, and determine whether to approve, each Commercialization Plan for a DT Co-Co Product. Moderna shall have the sole right to select the Product Marks for each DT Co-Co Product to be used in Moderna's Region and included in the applicable Commercialization Plan and may decide to develop and adopt certain distinctive colors, logos, images, symbols, and trade dress to be used (in addition to the Product Marks) in connection with the Commercialization of each DT Co-Co Product in Moderna's Region. The Parties shall jointly select the Product Marks for each DT Co-Co Product to be used in Metagenomi's Region and included in the applicable Commercialization Plan and may jointly decide to develop and adopt certain distinctive colors, logos, images, symbols, and trade dress to be used (in addition to the Product Marks) in connection with the Commercialization of each DT Co-Co Product in Metagenomi's Region. The JCC shall prepare, review, and discuss, and the JSC shall review, discuss, and determine whether to approve, each Commercialization Plan and Commercialization Budget. On an annual basis during the Term (or more frequently as may be required), the JCC shall review and update each Commercialization Plan and Commercialization Budget based on the currently available information and data, including for any applicable new formulations or Indications that that were added to a Development Plan pursuant to Section 6.4.7(b) (JDC and JSC Decision Regarding New Development Activities) or new Combination Products approved by the

JSC in accordance with Section 6.4.8 (Combination Products), in each case, that are not included in the then-current Commercialization Plan for the applicable DT Co-Co Product. The JSC shall review, discuss, and determine whether to approve any such update to the applicable Commercialization Plan and corresponding Commercialization Budget. Each such update to a Commercialization Plan and corresponding Commercialization Budget shall become effective and shall supersede the previous Commercialization Plan and corresponding Commercialization Budget upon approval thereof by the JSC.

6.7.2 **Commercialization Activities**. The Parties shall Commercialize the DT Co-Co Products in the Territory in accordance with the Commercialization Plan for each DT Co-Co Product. The Lead Party shall lead the performance of Commercialization activities in its respective Region, and, without seeking JCC review or approval, shall have the right to make operational decisions with respect to the performance of such Commercialization activities to the extent consistent with the then-current Commercialization Plan provided that Moderna may appoint up to fifty percent (50%) of the deployed Sales Force for the U.S. Notwithstanding anything to the contrary herein, the Parties may elect to conduct Commercialization activities jointly and allocate specific operational activities in accordance with the Commercialization Plan. Without limiting the generality of the foregoing, in connection with the Commercialization of the DT Co-Co Products in its respective Region, The Lead Party shall be solely responsible for (a) receiving, accepting, and filling orders for the DT Co-Co Products, (b) handling all returns of the DT Co-Co Products, (c) controlling invoicing, order processing, and collection of accounts receivable for the sales of the DT Co-Co Products, (d) booking and recording sales of the DT Co-Co Products in its books of account, and (e) distributing and managing inventory of the DT Co-Co Products. If a particular Commercialization activity is allocated to both Parties to perform jointly under a Commercialization Plan, then both Parties shall coordinate to jointly conduct such activity in collaboration with each other.

6.7.3 **Commercialization Costs and Expenses**. [***].

6.7.4 **Assumed Commercialization Activities**. If either Party has defaulted on its obligations to perform one or more Commercialization activities allocated to such Party under a Commercialization Plan in a manner that delays the performance of such matters for a period of more than [***] beyond the timeline set forth in such Commercialization Plan, then the other Party shall provide such defaulting Party with written notice regarding such failure to perform, and upon receipt of such notice the defaulting Party shall have a [***] period to commence the performance of such Development activities in accordance with the terms hereof and the applicable Commercialization Plan (the "**Commercialization Activities Cure Period**"). If (a) the defaulting Party has not commenced performance of such Commercialization activities during the applicable Commercialization Activities Cure Period, (b) the defaulting Party notifies the non-defaulting Party in writing that the defaulting Party anticipates that it shall be unable to perform such Commercialization activities, or (c) the defaulting Party does not perform such Commercialization activities in accordance with the applicable Commercialization Plan or otherwise in accordance with this Section 6.7 (Commercialization), within a reasonable period of time in accordance with the terms hereof, then, in each case ((a)-(c)), the non-defaulting Party may, upon written notice to the defaulting Party, assume those Commercialization activities that are the subject of such default by the defaulting Party (the "**Assumed Commercialization Activities**"). In connection with the defaulting Party's failure to perform such activities or default of such obligations and the non-defaulting Party's assumption thereof:

(a) the defaulting Party shall work collaboratively and in good faith with the non-defaulting Party, and make its personnel reasonably available to the non-defaulting Party, in each case, in order to (i) transfer of any applicable technology, materials, or contracts with subcontractors to the other Party that are necessary or reasonably useful for the performance of the applicable Assumed Commercialization Activities and (ii) provide such other assistance so as to enable the non-defaulting Party to assume performance of the applicable Assumed Commercialization Activities;

(b) the non-defaulting Party shall thereafter have the right to make operational decisions with respect to the performance of such Assumed Commercialization Activities to the extent consistent with the then-current Commercialization Plan;

(c) the applicable JSC subcommittee shall update the applicable Commercialization Plan to allocate performance of the Assumed Commercialization Activities to the non-defaulting Party; and

(d) [***].

6.7.5 **Pricing Matters; Pricing and Reimbursement Approvals; Information Sharing; Pricing Strategy**.

(a) Moderna shall be responsible for preparing the overall pricing strategy for the Territory, including establishing various pricing bands for each country in the Territory, which is to be included in the Commercialization Plan subject to JCC review and JSC approval. Metagenomi shall have the right to comment, which Moderna shall consider in good faith in Moderna's proposed pricing strategy. The Regulatory Responsible Party will be responsible for all Pricing Matters in its respective Region within the guidelines, such as pricing bands, set by the overall pricing strategy;

(b) The Regulatory Responsible Party shall be solely responsible for negotiating, obtaining, and maintaining all Pricing and Reimbursement Approvals for the DT CoCo Products in any country or regulatory jurisdiction in its respective Region where required in its own name or in the name of its Affiliate, subject to JSC approval; and

(c) Upon either Party's reasonable request, but subject to local anticompetition laws and any obligations of confidentiality between a Party and any Third Party, the Parties, through the JCC, shall discuss key market research and relevant sections of DT Co-Co Product national reimbursement dossiers (or their equivalent) in the Territory, as well as other relevant Commercialization information regarding the Territory collected or prepared by or on behalf of such Party relating to each DT Co-Co Product that such Party agrees to share with the JCC for discussion.

6.7.6 **Commercialization Reports**. At each meeting of the JCC, each Party shall provide to the JCC a summary of the Commercialization activities performed by such Party for the DT Co-Co Products in the Territory, during the period since the last JCC meeting. In addition, at each meeting of the JCC following the First Commercial Sale of a DT Co-Co Product in a country in a Region, the respective Lead Party shall present sales forecasts, sales performance reports, and other information for such DT Co-Co Product in such country in the Region.

6.7.7 **Commercialization Diligence Obligations**. Following receipt of Regulatory Approval of a DT Co-Co Product in a country within the Territory each Party shall use Commercially Reasonable Efforts to perform, or cause to be performed, the activities for such DT Co-Co Product assigned to it in the applicable Commercialization Plan.

6.7.8 **Standards of Conduct; Compliance**. Each Party shall perform, or shall ensure that each of its Affiliates, sublicensees, and subcontractors perform, all Commercialization activities in a professional and ethical business manner and in compliance with Applicable Laws, the Approved Labeling, and any applicable Commercialization Plan.

6.7.9 **Product Materials**.

(a) **Creation; Ownership; Use**. Unless otherwise agreed by the Parties or as otherwise set forth in the Commercialization Plan, the Lead Party shall create and develop all Product Materials in accordance with the Approved Labeling, applicable Regulatory Approvals, and Applicable Laws for all countries in its respective Region and submit such Product Materials to the JCC for review, discussion, and approval. The Lead Party shall own all rights, title, and interests in and to any Product Materials for the DT Co-Co Products for its respective Region, excluding any Moderna Housemarks or Metagenomi Housemarks as may be.

(b) **Co-Branding of Product Materials**. [***].

6.7.10 **Product Marks**.

(a) **Ownership; Trademark License**. [***] inures to the benefit of Moderna, regardless of which Party uses Moderna Housemarks in which Region, and (ii) Metagenomi reserves all rights, title or interests in and to Metagenomi Housemarks, and all goodwill developed by virtue of the use of Metagenomi Housemarks inures to the benefit of Metagenomi, regardless of which Party uses Metagenomi Housemarks in which Region. Upon a Party's reasonable request from time to time, the other Party shall provide to such Party for its review all materials that include any Product Marks, provided that all subsequent uses of any materials already provided to such Party for review may be used without additional review.

(b) **Use**. Each Party agrees that it and its Affiliates and Sublicensees shall Commercialize each of the DT Co-Co Products in the Territory in a manner consistent with the Commercialization Plan and shall ensure that all DT Co-Co Products that are sold bearing the Product Marks are of a high quality consistent with industry standards for global pharmaceutical and biologic therapeutic products. Metagenomi agrees that it and its Affiliates and Sublicensees shall (a) not use any Product Marks in a way that might materially prejudice their distinctiveness or validity or the goodwill of Moderna therein and shall include the trademark registration symbol ® or ™ as appropriate; (b) ensure that each use of the Product Marks is in accordance with the guidelines with respect to manner of use set forth in the Commercialization Plan; (c) not directly or indirectly, attack, dispute, or contest the validity of or ownership of such Product Marks anywhere in the Territory or any registrations issued or issuing with respect thereto; (d) not use any trademarks or trade names so resembling any of such Product Marks as to be likely to cause confusion or deception; and (e) place and display the Product Marks on and in connection with the DT Co-Co Products in a way that acknowledges Moderna's role in discovering the DT Co-Co Products and that such DT Co-Co Product is under license from Moderna.

(c) **Required Use**. On a DT Co-Co Product-by-DT Co-Co Product basis, Metagenomi shall promote and sell such DT Co-Co Products in the U.S. only under the applicable Product Marks for such DT Co-Co Products as set forth herein and in the applicable Medical Affairs Plan, Commercialization Plan, and if a sublicensee is approved pursuant to Section 5.7.1 (Rights to Grant Licenses and Sublicenses in the Territory) then such sublicensee's trademarks, and no other Trademarks.

(d) **Registration, Maintenance, and Enforcement**. [***].

6.7.11 **Patent Marking**. [***].

6.7.12 **Copyright License**. [***].

6.8 **Opt-Out Right**.

6.8.1 **Opt-Out Right**. With respect to the DT Co-Co Program, (a) Metagenomi may, at any time during the Term of the DT Co-Co Program, and (b) Moderna may, at any time during the Term of the DT Co-Co Program (in the case of (a), Metagenomi shall be the "**Opt-Out Party**" and in the case of (b), Moderna shall be the "**Opt-Out Party**"), elect to opt-out of its obligations under such DT Co-Co Program (the "**Opt-Out DT Co-Co Program**") (in the case of Moderna being the Opt-Out Party, subject to Section 6.8.2(e) (Effects of Opt-Out)), and the other Party (the "**Primary Party**") shall have the right to continue the Development and Commercialization activities in the Opt-Out DT Co-Co Program in the Territory ("**Opt-Out**," and such right to Opt-Out, the "**Opt-Out Right**"). Metagenomi may exercise its Opt-Out Right by providing written notice to Moderna of such election at any time during the Term of the DT Co-Co Program, and Moderna may exercise its Opt-Out Right by providing written notice to Metagenomi of such election at any time during the Term of the DT Co-Co Program. Any exercise by either Party of its Opt-Out Right in accordance with the foregoing sentence shall become effective [***] after the delivery of the written notice (the "**Opt-Out Date**").

6.8.2 **Effects of Opt-Out**.

[***]

6.8.3 **Right of First Offer After Opt-Out**.

[***]

6.9 **Preservation of Program Assets**. On a Program-by-Program basis, except as otherwise permitted under this Agreement, during the Term of such Program, Metagenomi (i) shall not and shall ensure that its Affiliates do not, (a) assign, transfer, convey or dispose of, or enter into any agreement with any Affiliate or Third Party to assign, transfer, convey or dispose of (or agree to do any of the foregoing), the Collaboration Targets, any Candidates or Products, or any

of the Metagenomi Licensed Collaboration Technology, including its interest in any Program Technology, in each case in connection with such Program (the "**Metagenomi Program Assets**"), or (b) license, option or grant to any Affiliate or Third Party, or agree to license, option or grant to a Third Party, any rights to or otherwise encumber any Metagenomi Program Assets, in each case ((a)-(b)) that would impair or conflict in any respect with any of the rights or licenses granted or to be granted to Moderna hereunder, (ii) shall, under Article 5 (Licenses; Exclusivity; Manufacture), transfer or otherwise provide the most advanced version of the Metagenomi Licensed Collaboration Technology to Moderna or the JSC, as applicable, and (iii) shall include such most advanced version of the Metagenomi Licensed Collaboration Technology in the applicable Program Plan. Without limiting the generality of the foregoing, until the end of the Research Term, Metagenomi will not spin-off or agree to spin-off (by any means) any Patents or Know-How relevant to the licenses granted by Metagenomi hereunder into any Affiliate of Metagenomi (at the time of such spin) without ensuring that any newly invented Patents or Know-How arising (directly or indirectly) from the practice of any such spun Patents or Know-How (or improvements thereto) remain "Controlled" by Metagenomi under this Agreement. For clarity, Metagenomi's obligations under this Section 6.9 (Preservation of Program Assets) shall continue to apply in the event Metagenomi exercises its Opt-Out Right under Section 6.8 (Opt-Out Right). With respect to each DT Co-Co Program, except as otherwise permitted under this Agreement, during the Term of such DT Co-Co Program, Moderna shall not and shall ensure that its Affiliates do not, (A) assign, transfer, convey or dispose of, or enter into any agreement with any Affiliate or Third Party to assign, transfer, convey or dispose of (or agree to do any of the foregoing), the DT Co-Co Target, any Candidates or Products, or any of the Moderna Licensed DT Co-Co Technology, including its interest in any Program Technology, in each case in connection with such Program (the "**Moderna Program Assets**"), or (B) license, option or grant to any Affiliate or Third Party, or agree to license, option or grant to a Third Party, any rights to or otherwise encumber any Moderna Program Assets, in each case ((A)-(B)) that would impair or conflict in any respect with any of the rights or licenses granted or to be granted to Metagenomi in such DT Co-Co Program. For clarity, Moderna's obligations under this Section 6.9 (Preservation of Program Assets) shall continue to apply in the event Moderna exercises its Opt-Out Right under Section 6.8 (Opt-Out Right).

6.10 **Safety Concern**. Notwithstanding anything to the contrary herein or in the applicable DT Co-Co Plan for a given DT Co-Co Program, if, at any time during or after the Term of such DT Co-Co Program, Moderna reasonably believes that there is a Safety Concern with respect to a Product in such DT Co-Co Program, then Moderna will immediately (and in any event within five (5) Business Days after the date it determines there is a Safety Concern) provide written notice to Metagenomi of such Safety Concern, following which neither Party may conduct any further Development or Commercialization activities with respect to the Product that gave rise to the Safety Concern until such Safety Concern is resolved; provided that if the Parties do not mutually agree how to resolve such Safety Concern within a [***] period, then Moderna shall have the right to determine whether there will be any further Development or Commercialization activities with respect to such Product, and the extent of those activities, including the right to cease or suspend or cause the cessation or suspension of the conduct of any ongoing or future Clinical Trials of the Product, and in the event Moderna determines that there will be no further Development or Commercialization activities with respect to the DT Co-Co Product in such DT Co-Co Program, the DT Co-Co Program shall terminate with respect to such DT Co-Co Product to the extent it has not already expired or been terminated otherwise, and the Parties shall cooperate with each other to wind-down their respective existing activities with respect to such Product.

Article 7
FEES, ROYALTIES, & PAYMENTS

7.1 **Upfront Payment**. As partial consideration for the rights granted by Metagenomi to Moderna pursuant to the terms of this Agreement, within [***] of the Effective Date, Moderna shall pay to Metagenomi (i) a non-refundable, non-creditable, unencumbered cash payment equal to forty million Dollars ($40,000,000) (the "**Upfront Payment**") and (ii) the first payment of the Annual Research Funding Amount as described in Section 7.3 (Research Funding), provided that, promptly (and in no event later than [***]) after the Effective Date, Metagenomi provides Moderna with a properly completed and signed IRS Form W-9 and an invoice for each of items (i) and (ii).

7.2 **Convertible Note**. Pursuant to those convertible note financing agreements (collectively, "**Convertible Note Instruments**") entered into by the Parties dated as of even date herewith, and in accordance with the terms and conditions set forth therein, Moderna shall purchase convertible notes from Metagenomi in the amount of thirty million Dollars ($30,000,000) in principal converting to equity at the next Qualified Financing, as defined in the Convertible Note Instruments, on the terms and conditions set forth therein. The Convertible Note Instruments shall further provide that Moderna shall have the right to designate one (1) observer to Metagenomi's Board of Directors.

7.3 **Research Funding**.

7.3.1 As additional consideration for the rights and license granted herein, Moderna shall pay Metagenomi an amount of five million Dollars ($5,000,000) within [***] after the Effective Date and at least five million Dollars ($5,000,000) within [***] after each anniversary of the Effective Date (each, the "**Annual Research Funding Amount**"), for Metagenomi's Research Costs under the RT Technology Research Plan, the RT Preclinical Research Plans, the DT Target Evaluation Plan and the DT Moderna Research Plans. Notwithstanding the above or anything else herein to the contrary, should the Annual Research Funding Amount for a specific year after the Effective Date not be fully consumed by Metagenomi's Research Costs incurred under the RT Technology Research Plan, the RT Preclinical Research Plans, the DT Target Evaluation Plan and the DT Moderna Research Plans during such year, Metagenomi shall promptly notify Moderna of same after the applicable anniversary of the Effective Date, and Moderna may credit its own DT Co-Co Research Costs under the DT Co-Co Research Plans for such year against any remainder of the Annual Research Funding Amount for such year. Any remaining DT Co-Co Research Costs thereafter shall be subject to sharing with Metagenomi pursuant to 6.4.4 (Development Cost Sharing).

7.3.2 **Research Funding Audit**. In accordance with Section 7.6 (Accounting; Audit), Moderna may audit any invoices and expense reports provided by Metagenomi under Section 3.5 (RT Research Term Costs) and Section 4.6 (DT Moderna Research Term Costs).

7.4 **Co-Co Products Profit and Loss Share**. Subject to Sections 6.8 (Opt-Out Right), Moderna and Metagenomi shall share in Operating Profits or Losses with respect to Commercialization activities, Medical Affairs activities, the activities set forth under Other Operating Expenses and other related activities for the DT Co-Co Products in the Territory as follows: Each Party shall bear (and be entitled to) fifty percent (50%) of such Operating Profits or Losses (the "**Profit and Loss Share**"). **Schedule J** (Co-Co Products Profit and Loss Share) sets forth the procedures for reporting of actual results for each Calendar Quarter and review and discussion of potential discrepancies, reconciliation, reasonable forecasting, and other finance and accounting matters, and to the extent such matters are not set forth in **Schedule J** (Co-Co Products Profit and Loss Share), the JSC shall determine such matters.

7.5 **Apportionment of Costs**. If any Commercialization Costs, Development Costs, External Costs, Medical Affairs Costs, Cost of Sales, or Other Operating Expenses benefit both (a) a DT Co-Co Product in the Territory, and (b) any other product or activities of a Party outside of this Agreement, then the applicable Party incurring such costs shall apportion such costs in a manner that fairly and reasonably reflects the benefit to the DT Co-Co Product in the Territory and the other products or activities of such Party outside of this Agreement, as applicable. Each Party shall keep records of the total costs incurred and the apportionment pursuant to the records required under Section 7.6 (Accounting; Audit). At the request of the other Party, the Party making the apportionment shall provide reasonable additional supporting documentation and make its personnel reasonably available to answer any questions, and if the other Party disputes the apportionment, then the JSC shall review, discuss, and determine what percentage of the total costs in question can be included as Commercialization Costs, Eligible Development Costs, Cost of Sales, Eligible Medical Affairs Costs, or Other Operating Expenses, as applicable.

7.6 **Accounting; Audit**. Each Party agrees to keep full, clear, and accurate records in accordance with U.S. GAAP, consistently applied, for a period of at least [***] after the relevant payment is owed pursuant to this Agreement, setting forth Research Costs (including Eligible Co-Co Research Costs, RT Excess Costs, DT Moderna Excess Costs), Development Costs (including Eligible Development Costs), Medical Affairs Costs (including Eligible Medical Affairs Costs) Manufacturing Costs, Commercialization Costs, Other Operating Expenses, royalties, sales of the Products, and other amounts payable to the other Party hereunder in sufficient detail to enable amounts owed or payable to the other Party hereunder to be determined. Each Party further agrees to permit its books and records to be examined by an independent accounting firm selected by the other Party and reasonably acceptable to the audited Party to verify the accuracy of any of the foregoing; provided that such independent accounting firm is subject to written obligations of confidentiality and non-use applicable to each Party's Confidential Information that are at least as stringent as those set forth described in Article 11 (Confidentiality). Such audit shall not be (a) performed more frequently than [***], (b) conducted for any Calendar Year more than [***] after the end of such year, or (c) repeated for any Calendar Year or with respect to the same set of records (unless a discrepancy with respect to such records is discovered during a prior audit). Such examination is to be made at the expense of the auditing Party, except in the event that the results of the audit reveal an underpayment or overcharge by the audited Party of [***] or more during the period being audited, in which case reasonable audit fees for such examination shall be paid by the audited Party. The underpaid Party shall be entitled to recover any shortfall in payments as determined by such audit, plus interest thereon, calculated in accordance with Section 7.15 (Default Interest). If such examination of records reveals any overpayment by a Party, then the other Party shall credit the amount overpaid against future amounts due to the other Party by the overpaying Party.

7.7 **Disputed Payments**. If a Party disputes an invoice or other payment obligation under this Agreement, then such Party shall timely pay the undisputed amount of the invoice or other payment obligation, and the Parties shall resolve such dispute in accordance with Section 13.4 (Baseball Arbitration).

7.8 **Milestone Payments**.

7.8.1 **General**. Moderna shall pay to Metagenomi certain milestone payments ("**Milestone Payments**") set forth in this Section 7.8 (Milestone Payments): within [***] following the receipt of an invoice from Metagenomi for the applicable Milestone Payment in respect of (i) the first achievement of an RT Technology Milestone during the RT Research Term or Base Editing Correction Readiness during the Initial RT Research Term or Base Editing Knockout Readiness during the DT Moderna Research Term, pursuant to Section 7.8.2 (Technology Milestone Fees), (ii) the first Product for each RT Preclinical Research Program achieving an RT Target development and regulatory milestone event set forth in Section 7.8.3 (RT Target Development Milestones) (the "**RT Target Development and Regulatory Milestone Event**"), (iii) the first Product for each DT Moderna Target achieving a DT Moderna Target development and regulatory milestone event set forth in Section 7.8.5 (DT Target Development Milestones) (the "**DT Moderna Target Development and Regulatory Milestone Event**"), (iv) the first occurrence of all Products Directed Against a given RT Target collectively achieving the sales milestone events set forth in Section 7.8.4 (RT Target Sales Milestones) (the "**RT Target Sales Milestone Events**"), and (v) the first occurrence of all Products Directed Against a given DT Moderna Target collectively achieving the sales milestone events set forth in Section 7.8.6 (DT Moderna Target Sales Milestones) (the "**DT Moderna Target Sales Milestone Events**"). For clarity, the maximum number of each RT Target Development and Regulatory Milestone Event achievable is ten (10) (i.e., only once per each RT Target subject to this Agreement), and the maximum number of each DT Moderna Target Development and Regulatory Milestone Event achievable is two (2) (i.e., only once per each DT Moderna Target subject to this Agreement). Each Milestone Payment made under this Section 7.8 (Milestone Payments) shall be non- refundable, non-creditable and not subject to set-off hereunder. Notwithstanding anything else herein to the contrary, any pharmaceutical product (A) Developed with the intent to be Commercialized as a single-priced pharmaceutical product, (B) Commercialized as a single-priced pharmaceutical product, in each case of (A) and (B), by or on behalf of Moderna or any of its Affiliates or Sublicensees, which comprises two or more Licensed RT Products, each Directed Against a different RT Target, shall be deemed one Licensed RT Product Directed Against only one RT Target, for purposes of this Section 7.8 (Milestone Payments), and any pharmaceutical product, (C) Developed with the intent to be Commercialized as a single-priced pharmaceutical product, or (D) Commercialized as a single-priced pharmaceutical product, in each case of (C) and (D), by or on behalf of Moderna or any of its Affiliates or Sublicensees, which comprises two or more Licensed DT Products, each Directed Against a different DT Moderna Target, shall be deemed one Licensed DT Product Directed Against only one DT Moderna Target, for purposes of this Section 7.8 (Milestone Payments).

7.8.2 **Technology Milestone Fees**. The Milestone Payments to be made by Moderna to Metagenomi pursuant to Section 7.8.1 (Milestone Payments, General) with respect to first achieving an RT Technology Milestone described below during the RT Research Term, or Base Editing Correction Readiness described below during the Initial RT Research Term, or Base Editing Knockout Readiness described below during the DT Moderna Research Term are as follows:

Technology Milestone Event Achieved During the RT Research Term, the Initial RT Research Term or the DT Moderna Research Term, each as applicable	Maximum Total Payment	Milestone Payment
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]

The maximum total amount payable under this Section 7.8.2 (Technology Milestone Fees) shall not exceed seventy-five million Dollars ($75,000,000). Metagenomi shall provide prompt written notice to the JSC upon achievement of an RT Technology Milestone during the RT Research Term, upon achievement of Base Editing Knockout Readiness during the DT Moderna Research Term, and upon achievement of Base Editing Correction Readiness during the Initial RT Research Term, in each case together with sufficient data and other information for the JSC to confirm such achievement. The JSC shall notify Metagenomi and Moderna of its confirmation within [***] after receiving the written notice from Metagenomi. Metagenomi shall send an invoice for the applicable Milestone Payment within [***] after receiving the confirmation from the JSC.

7.8.3 **RT Target Development Milestones**. The Milestone Payments to be made by Moderna to Metagenomi pursuant to Section 7.8.1 (Milestone Payments, General) with respect to the first Product for each RT Preclinical Research Program to achieve the applicable RT Target Development and Regulatory Milestone Event described below during the Term are as follows:

RT Target Development and Regulatory Milestone Events	Milestone Payment
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

The maximum total amount payable under this Section 7.8.3 (RT Target Development Milestones) shall not exceed one hundred million Dollars ($100,000,000) per RT Target subject to this Agreement pursuant to Section 7.8.1 (Milestone Payments, General). For clarity, no Milestone Payment is payable for subsequent or repeated achievements of the same RT Target Development and Regulatory Milestone Event with respect to the same Licensed Product (including formulations), or any subsequent Licensed Products with respect to an RT Target for which an RT

Target Development and Regulatory Milestone Event has occurred (see, e.g., the following example set forth in the remainder of this Section 7.8.3 (RT Target Development Milestones)). By way of example and not limitation, assume that a Licensed Product achieves the first RT Target Development and Regulatory Milestone Event for the first (1st) RT Target, and immediately after the Initiation of the Phase II Clinical Trial for such Licensed Product, Moderna decides to discontinue the Development of such Licensed Product Directed Against that RT Target. In such case, Moderna would pay Metagenomi the Milestone Payment corresponding to the first RT Target Development and Regulatory Milestone Event set forth in the table above upon the attainment of such first RT Target Development and Regulatory Milestone Event by such Licensed Product. Then, assume that a different Licensed Product for the same RT Target achieves the first RT Target Development and Regulatory Milestone Event. In such case, no Milestone Payment is due upon the attainment of the first RT Target Development and Regulatory Milestone Event with respect to the second Licensed Product, and Moderna would pay Metagenomi the Milestone Payments corresponding to the second RT Target Development and Regulatory Milestone Event set forth in the table above upon the attainment of such second RT Target Development and Regulatory Milestone Event by such second Licensed Product. With respect to each RT Target Development and Regulatory Milestone Event that has two potential options of either (i) or (ii) in the table above, if the first achievement is for the RT Target Development and Regulatory Milestone Event under clause (ii), and if there is a subsequent achievement for the clause (i) version of the same RT Target Development and Regulatory Milestone Event, then upon the occurrence of such subsequent achievement the difference between the amount of clauses (i) and (ii) shall be payable. By way of example, if the first Pricing and Reimbursement Approval in the United Kingdom is obtained for a Licensed Product Directed Against a particular RT Target in an Orphan Indication (a clause (ii) occurrence), then [***] would be owing in accordance with the table above, and if subsequently Pricing and Reimbursement Approval in the United Kingdom is obtained for a Licensed Product Directed Against the same RT Target in a Non-Orphan Indication, then an additional [***] would be due [***].

Moderna shall provide prompt written notice to Metagenomi upon achievement of an RT Target Development and Regulatory Milestone Event. Metagenomi shall send an invoice for the applicable Milestone Payment within sixty (60) days after receiving the written notice from Moderna.

7.8.4 **RT Target Sales Milestones**. The Milestone Payments to be made by Moderna to Metagenomi pursuant to Section 7.8.1 (Milestone Payments, General) with respect to the first occurrence of all Licensed Products Directed Against a given RT Target collectively achieving the below RT Target Sales Milestone Events are as follows:

RT Target Sales Milestone Event	Milestone Payment
First Calendar Year in which annual Net Sales of all Licensed Products Directed Against such RT Target in the Territory exceed [***]	[***]
First Calendar Year in which annual Net Sales of all Licensed Products Directed Against such RT Target in the Territory exceed [***]	[***]
First Calendar Year in which annual Net Sales of all Licensed Products Directed Against such RT Target in the Territory exceed [***]	[***]
First two consecutive Calendar Years in each of which annual Net Sales of all Licensed Products Directed Against such RT Target in the Territory exceed one and [***]	[***]

The maximum total amount payable under this Section 7.8.4 (RT Target Sales Milestones) shall not exceed two hundred million Dollars ($200,000,000) per RT Target subject to this Agreement pursuant to Section 7.8.1 (Milestone Payments, General). If more than one RT Target Sales Milestone Event is achieved in the same Calendar Year, Moderna shall pay Metagenomi all Milestone Payments for such RT Target Sales Milestone Events achieved in such Calendar Year in accordance with this Section 7.8.4 (RT Target Development Milestones).

Moderna shall provide prompt written notice to Metagenomi upon achievement of an RT Target Sales Milestone Event. Metagenomi shall send an invoice for the applicable Milestone Payment within sixty (60) days after receiving the written notice from Moderna.

7.8.5 **DT Moderna Target Development Milestones**. The Milestone Payments to be made by Moderna to Metagenomi pursuant to Section 7.8.1 (Milestone Payments, General) with respect to the first Product for each DT Moderna Target achieving a DT Moderna Target Development and Regulatory Milestone Event described below during the Term are as follows:

DT Moderna Target Development and Regulatory Milestone Events	Milestone Payment
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

The maximum total amount payable under this Section 7.8.5 (DT Moderna Target Development Milestones) shall not exceed one hundred million Dollars ($100,000,000) per DT Moderna Target subject to this Agreement pursuant to Section 7.8.1 (Milestone Payments, General). For clarity, no Milestone Payment is payable for subsequent or repeated achievements of the same DT Moderna Target Development and Regulatory Milestone Event with respect to the same Licensed Product (including formulations), or any subsequent Licensed Products with respect to a DT Moderna Target (or multiple targets that include the same DT Moderna Target) for which a DT Moderna Target Development and Regulatory Milestone Event has occurred (see, e.g., the following example set forth in the remainder of this Section 7.8.5 (DT Moderna Target Development Milestones)). By way of example and not limitation, assume that a Licensed Product achieves the first DT Moderna Target Development and Regulatory Milestone Event for the first (1st) DT Moderna Target, and immediately after the Initiation of the Phase II Clinical Trial for such Licensed Product, Moderna decides to discontinue the Development of such Licensed Product Directed Against that DT Moderna Target. In such case, Moderna would pay Metagenomi the Milestone Payment corresponding to the first DT Moderna Target Development and Regulatory Milestone Event set forth in the table above upon the attainment of such DT Moderna Target Development and Regulatory Milestone Event by such Licensed Product. Then, assume that a different Licensed Product for the same DT Moderna Target achieves the first DT Moderna Target

Development and Regulatory Milestone Event. In such case, no Milestone Payment is due upon the attainment of the first DT Moderna Target Development and Regulatory Milestone Event with respect to the second Licensed Product, and Moderna would pay Metagenomi the Milestone Payment corresponding to the second DT Moderna Target Development and Regulatory Milestone Event set forth in the table above upon the attainment of such second DT Moderna Target Development and Regulatory Milestone Event by such second Licensed Product. With respect to each DT Moderna Target Development and Regulatory Milestone Event that has two potential options of either (i) or (ii) in the table above, if the first achievement is for the DT Moderna Target Development and Regulatory Milestone Event under clause (ii), and if there is a subsequent achievement for the clause (i) version of the same DT Moderna Target Development and Regulatory Milestone Event, then upon the occurrence of such subsequent achievement the difference between the amount of clauses (i) and (ii) shall be payable. By way of example, if the first Pricing and Reimbursement Approval in the United Kingdom is obtained for a Licensed Product Directed Against a particular DT Moderna Target in an Orphan Indication (a clause (ii) occurrence), then [***] would be owing in accordance with the table above, and if subsequently Pricing and Reimbursement Approval in the United Kingdom is obtained for a Licensed Product Directed Against the same DT Moderna Target in a Non-Orphan Indication, then an additional [***] would be due [***].

Moderna shall provide prompt written notice to Metagenomi upon achievement of a DT Moderna Target Development and Regulatory Milestone Event. Metagenomi shall send an invoice for the applicable Milestone Payment within [***] after receiving the written notice from Moderna.

7.8.6 **DT Moderna Target Sales Milestones**. The Milestone Payments to be made by Moderna to Metagenomi pursuant to Section 7.8.1 (Milestone Payments, General) with respect to the first occurrence of all Licensed Products Directed Against a given DT Moderna Target collectively achieving the below DT Moderna Target Sales Milestone Events are as follows:

DT Moderna Target Sales Milestone Event	Milestone Payment
First Calendar Year in which annual Net Sales of all Licensed Products Directed Against such DT Moderna Target in the Territory exceed [***]	[***]
First Calendar Year in which annual Net Sales of all Licensed Products Directed Against such DT Moderna Target in the Territory exceed [***]	[***]
First Calendar Year in which annual Net Sales of all Licensed Products Directed Against such DT Moderna Target in the Territory exceed [***]	[***]
First two Consecutive Calendar Years in each of which annual Net Sales of all Licensed Products Directed Against such DT Moderna Target exceed one and [***]	[***]

The maximum total amount payable under this Section 7.8.6 (DT Moderna Target Sales Milestones) shall not exceed two hundred million Dollars ($200,000,000) per DT Moderna Target subject to this Agreement pursuant to Section 7.8.1 (Milestone Payments, General). If more than one DT Moderna Target Sales Milestone Event is achieved in the same Calendar Year, Moderna shall pay Metagenomi all Milestone Payments for such DT Moderna Target Sales Milestone Events achieved in such Calendar Year in accordance with this Section 7.8.6 (DT Moderna Target Sales Milestones).

Moderna shall provide prompt written notice to Metagenomi upon achievement of a DT Moderna Target Sales Milestone Event. Metagenomi shall send an invoice for the applicable Milestone Payment within sixty (60) days after receiving the written notice from Moderna.

7.9 **Royalties on Products Directed Against an RT Target**.

7.9.1 **Royalties**. Subject to the remainder of this Section 7.9 (Royalties on Products Directed Against an RT Target), on an RT Target-by-RT Target basis, Moderna shall pay Metagenomi royalties as set forth below on aggregate annual Net Sales of Licensed Products Directed Against an RT Target with respect to which Moderna has exercised the RT Option pursuant to Section 3.9 (RT Option) in the Territory, as calculated by multiplying the applicable royalty rate set forth below by the corresponding portion of aggregate annual Net Sales of such Licensed Products in the Territory, during the period of time, on a Licensed Product-by-Licensed Product and country-by-country basis, beginning on the First Commercial Sale of any such Licensed Product in such country and continuing until the latest of: (a) the expiration or abandonment of the last-to-expire Valid Claim of a Patent within the Licensed RT Technology in such country [***], contained in such Licensed Product; (b) ten (10) years after the First Commercial Sale of such Licensed Product in such country; and (c) expiration of the Regulatory Exclusivity in such country with respect to such Licensed Product (the "**RT Royalty Term**"). Notwithstanding anything else herein to the contrary, any pharmaceutical product Commercialized as a single-priced pharmaceutical product by or on behalf of Moderna or any of its Affiliates or Sublicensees, which comprises two or more Licensed RT Products, each Directed Against a different RT Target, shall be deemed one Licensed RT Product Directed Against only one RT Target of Moderna's choosing, for purposes of this Section 7.9 (Royalties on Products Directed Against an RT Target), provided that the RT Royalty Term for such Licensed RT Product shall be the longest of the RT Royalty Terms for each of the Licensed RT Products in such pharmaceutical product if they were separate Licensed RT Products.

Aggregate Annual Net Sales of all Licensed Products Directed Against an RT Target in the Territory	**Royalty Rate**
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against such RT Target less than or equal to [***]	[***]
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against such RT Target greater than one hundred and [***] and less than or equal to [***]	[***]
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against such RT Target greater than [***] and less than or equal to [***]	[***]
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against such RT Target greater than [***] and less than or equal to [***]	[***]
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against such RT Target greater than [***]	[***]

7.9.2 **Valid Claim**. On a Licensed Product-by-Licensed Product and country-by-country basis, with respect to a Licensed Product Directed Against an RT Target that is subject to royalties under this Section 7.9 (Royalties on Products Directed Against an RT Target), at any time during the RT Royalty Term when no Valid Claim (including in the event of expiration) of any Patent within the Licensed RT Technology Covers such Licensed Product in a country, the royalty rates provided in Section 7.9.1 (Royalties) for such Licensed Product shall immediately be reduced in such country by [***] and shall remain so reduced for the remainder of the RT Royalty Term for so long as there is no such Valid Claim.

7.9.3 **Biosimilar Products**. On a country-by-country and Licensed Product-by-Licensed Product basis, with respect to a Licensed Product Directed Against an RT Target that is subject to royalties under this Section 7.9 (Royalties on Products Directed Against an RT Target), from and after the first Calendar Year in which a Biosimilar Product is sold in a given country and has achieved (i) [***] unit sales in such country in the market segment in which such Licensed Product competes in such country, the royalties payable pursuant to Section 7.9.1 (Royalties) for such Licensed Product shall be reduced in such country by [***] of the royalties otherwise payable under Section 7.9.1 (Royalties) and (ii) [***] unit sales in such country in the market segment in which such Licensed Product competes in such country, the royalties payable pursuant to Section 7.9.1 (Royalties) for such Licensed Product shall be reduced in such country by [***] of the royalties otherwise payable under Section 7.9.1 (Royalties).

7.9.4 **Third Party Payments**. Without prejudicing Moderna's right under Section 5.11.3 (RT Moderna In-License Agreements), if Moderna or any of its Affiliates or sublicensees in-licenses any intellectual property from a Third Party that is necessary or reasonably useful to conduct the Research, Development, Commercialization, making, having made, use, keeping, importation, exportation, offering for sale, sale or other Exploitation of a Licensed RT Product in the Territory that is subject to royalties under this Section 7.9 (Royalties on Products Directed Against an RT Target) or milestone payments to Metagenomi under Sections 7.8.2 (Technology Milestone Fees) through 7.8.4 (RT Target Sales Milestones), Moderna may deduct [***] of any and all milestone, royalty, and other payments (including required reimbursement for costs incurred in connection with enforcement or other actions and required sharing of certain recoveries) paid by it to such Third Party from any royalty payments to Metagenomi under this Section 7.9 (Royalties on Products Directed Against an RT Target) or milestone payments to Metagenomi under Sections 7.8.2 (Technology Milestone Fees) through 7.8.4 (RT Target Sales Milestones) for each Licensed RT Product.

7.9.5 **Cumulative Reductions Floor**. In no event will the aggregate amount of royalties due to Metagenomi for a Licensed Product Directed Against an RT Target in a country in the Territory in any given Calendar Quarter during the RT Royalty Term for such Licensed Product Directed Against an RT Target in such country be reduced by more than [***] of the amount that otherwise would have been due and payable to Metagenomi in such Calendar Quarter for such Licensed Product Directed Against an RT Target in such country as a result of the reductions set forth in Section 7.9.2 (Valid Claims), Section 7.9.3 (Biosimilar Products) and Section 7.9.4 (Third Party Payments), except in the event of Section 5.11.5 (Metagenomi Payments for Certain Technology) or Section 7.9.3(ii) (Biosimilar Products), which, for clarity, may result in up to [***] reduction of the royalties. Moderna may carry forward any such reductions permitted in accordance with Section 5.11.5 (Metagenomi Payments for Certain Technology), Section 7.9.2 (Valid Claims), Section 7.9.3 (Biosimilar Products) and Section 7.9.4 (Third Party Payments) that are incurred or accrued in a Calendar Quarter but that are not applied against royalties due to Metagenomi for such Licensed Product Directed Against an RT Target in such country in such

Calendar Quarter as a result of the foregoing floor and apply such amounts against royalties due to Metagenomi for such Licensed Product Directed Against an RT Target in such country in any subsequent Calendar Quarter (subject to the minimum floor set forth in this Section 7.9.5 (Cumulative Reductions Floor)) until the amount of such reduction has been fully applied against royalties due to Metagenomi for such Licensed Product Directed Against an RT Target in such country.

7.10 **Royalties on Products Directed Against a DT Moderna Target**.

7.10.1 **Royalties**. On a DT Moderna Target-by-DT Moderna Target basis, Moderna shall pay Metagenomi royalties as set forth below on aggregate annual Net Sales of Licensed Products Directed Against a DT Moderna Target with respect to which Moderna has exercised the DT Option pursuant to Section 4.9 (DT Option) in the Territory, as calculated by multiplying the applicable royalty rate set forth below by the corresponding portion of aggregate annual Net Sales of such Licensed Products in the Territory, during the period of time, on a Licensed Product-by-Licensed Product and country-by-country basis, beginning on the First Commercial Sale of any such Licensed Product in such country and continuing until the latest of: (a) the expiration or abandonment of the last-to-expire Valid Claim of a Patent within the Licensed DT Moderna Technology in such country [***], contained in such Licensed Product; (b) ten (10) years after the First Commercial Sale of such Licensed Product in such country; and (c) expiration of the Regulatory Exclusivity in such country with respect to such Licensed Product (the "**DT Moderna Royalty Term**"). Notwithstanding anything else herein to the contrary, any pharmaceutical product Commercialized as a single-priced pharmaceutical product by or on behalf of Moderna or any of its Affiliates or Sublicensees, which comprises two or more Licensed DT Products, each Directed Against a different DT Moderna Target, shall be deemed one Licensed DT Product Directed Against only one DT Moderna Target of Moderna's choosing, for purposes of this Section 7.10 (Royalties on Products Directed Against a DT Moderna Target), provided that the DT Moderna Royalty Term for such Licensed DT Product shall be the longest of the DT Moderna Royalty Terms for each of the Licensed DT Products in such pharmaceutical product if they were separate Licensed DT Products.

Aggregate Annual Net Sales of all Licensed Products Directed Against a DT Moderna Target in the Territory	**Royalty Rate**
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against a DT Moderna Target less than or equal to [***]	[***]
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against a DT Moderna Target greater than [***] and less than or equal to [***]	[***]
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against a DT Moderna Target greater than [***] and less than or equal to [***]	[***]
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against a DT Moderna Target greater than [***] and less than or equal to [***]	[***]
For that portion of aggregate annual Net Sales of all Licensed Products Directed Against a DT Moderna Target greater than [***]	[***]

7.10.2 **Valid Claim**. On a Licensed Product-by-Licensed Product and country-by-country basis, with respect to a Licensed Product Directed Against a DT Moderna Target that is subject to royalties under this Section 7.10 (Royalties on Products Directed Against a DT Moderna Target), at any time during the DT Moderna Royalty Term when no Valid Claim (including in the event of expiration) of any Patent within the Licensed DT Moderna Technology Covers such Licensed Product in a country, the royalty rates provided in Section 7.10.1 (Royalties) for such Licensed Product shall immediately be reduced in such country by [***] and shall remain so reduced for the remainder of the DT Moderna Royalty Term for so long as there is no such Valid Claim.

7.10.3 **Biosimilar Products**. On a country-by-country and Licensed Product-by-Licensed Product basis, with respect to a Licensed Product Directed Against a DT Moderna Target that is subject to royalties under this Section 7.10 (Royalties on Products Directed Against a DT Moderna Target), from and after the first Calendar Year in which a Biosimilar Product is sold in a given country and has achieved (i) [***] unit sales in such country in the market segment in which such Licensed Product competes in such country, the royalties payable pursuant to Section 7.10.1 (Royalties) for such Licensed Product shall be reduced in such country by [***] of the royalties otherwise payable under Section 7.10.1 (Royalties) and (ii) [***] unit sales in such country in the market segment in which such Licensed Product competes in such country, the royalties payable pursuant to Section 7.10.1 (Royalties) for such Licensed Product shall be reduced in such country by [***] of the royalties otherwise payable under Section 7.10.1 (Royalties).

7.10.4 **Third Party Payments**. Without prejudicing Moderna's right under Section 5.12.3 (DT Moderna In-License Agreements), if Moderna or any of its Affiliates or sublicensees in-licenses any intellectual property from a Third Party that is necessary or reasonably useful to conduct the Research, Development, Commercialization, making, having made, use, keeping, importation, exportation, offering for sale, sale or other Exploitation of a Licensed DT Product in the Territory that is subject to royalties under this Section 7.10 (Royalties on Products Directed Against a DT Moderna Target) or milestone payments to Metagenomi under Sections 7.8.5 (DT Moderna Target Development Milestones) or 7.8.6 (DT Moderna Target Sales Milestones), Moderna may deduct [***] of any and all milestone, royalty, and other payments (including required reimbursement for costs incurred in connection with enforcement or other actions and required sharing of certain recoveries) paid by it to such Third Party from any royalty payments to Metagenomi under this Section 7.10 (Royalties on Products Directed Against a DT Moderna Target) or milestone payments to Metagenomi under Sections 7.8.5 (DT Moderna Target Development Milestones) and 7.8.6 (DT Moderna Target Sales Milestones) for each Licensed DT Product.

7.10.5 **Cumulative Reductions Floor**. In no event will the aggregate amount of royalties due to Metagenomi for a Licensed Product Directed Against a DT Moderna Target in a country in the Territory in any given Calendar Quarter during the DT Moderna Royalty Term for such Licensed Product Directed Against a DT Moderna Target in such country be reduced by more than [***] of the amount that otherwise would have been due and payable to Metagenomi in such Calendar Quarter for such Licensed Product Directed Against a DT Moderna Target in such country as a result of the reductions set forth in Section 7.10.2 (Valid Claims), Section 7.10.3 (Biosimilar Products) and Section 7.10.4 (Third Party Payments), except in the event of Section 5.12.5 (Metagenomi Payments for Certain Technology) or Section 7.10.3(ii) (Biosimilar Products), which, for clarity, may result in up to [***] reduction of the royalties. Moderna may carry forward any such reductions permitted in accordance with Section 5.12.5 (Metagenomi Payments for Certain Technology), Section 7.10.2 (Valid Claims), Section 7.10.3 (Biosimilar Products) and Section 7.10.4 (Third Party Payments) that are incurred or accrued in a Calendar

Quarter but that are not applied against royalties due to Metagenomi for such Licensed Product Directed Against a DT Moderna Target in such country in such Calendar Quarter as a result of the foregoing floor and apply such amounts against royalties due to Metagenomi for such Licensed Product Directed Against a DT Moderna Target in such country in any subsequent Calendar Quarter (subject to the minimum floor set forth in this Section 7.10.5 (Cumulative Reductions Floor)) until the amount of such reduction has been fully applied against royalties due to Metagenomi for such Licensed Product Directed Against a DT Moderna Target in such country.

7.11 **Opt-Out Milestones and Royalties**.

7.11.1 **Opt-Out Milestones**. With respect to each DT Co-Co Program for which the Opt-Out Party has exercised its Opt-Out Right pursuant to Section 6.8 (Opt-Out Right), the Primary Party shall pay to the Opt-Out Party, certain milestone payments set forth in this Section 7.11.1 (Opt-Out Milestones) (the "**Opt-Out DT Co-Co Milestone Payments**") within sixty (60) days following the receipt of an invoice from the Opt-Out Party for the applicable Opt-Out DT Co-Co Milestone Payment in respect of (a) the first DT Co-Co Product in such DT Co-Co Program achieving a DT Co-Co Product development and regulatory milestone event set forth in Section 7.11.1(a) (Opt-Out DT Co-Co Product Development and Regulatory Milestone Events) (the "**Opt-Out DT Co-Co Product Development and Regulatory Milestone Events**"), and (b) the first occurrence of all DT Co-Co Products Directed Against the DT Co-Co Target in such DT Co-Co Program collectively achieving the sales milestone events set forth in Section 7.11.1(b) (Opt-Out DT Co-Co Product Sales Milestone Events) (the "**Opt-Out DT Co-Co Product Sales Milestone Events**").

(a) **Opt-Out DT Co-Co Product Development and Regulatory Milestone Events**. The Opt-Out DT Co-Co Milestone Payments to be made by the Primary Party to the Opt-Out Party pursuant to Section 7.11.1 (Opt-Out Milestones) with respect to the first DT Co-Co Product in such DT Co-Co Program achieving a DT Co-Co Product Development and Regulatory Milestone Event described below during the Term are as follows:

Opt-Out DT Co-Co Product Development and Regulatory Milestone Event	Opt-Out DT Co-Co Milestone Payment
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

The Primary Party shall provide prompt written notice to the Opt-Out Party upon achievement of an Opt-Out DT Co-Co Product Development and Regulatory Milestone Event. The Opt-Out Party shall send an invoice for the applicable Opt-Out DT Co-Co Milestone Payment within [***] after receiving the written notice from the Primary Party.

(b) **Opt-Out DT Co-Co Product Sales Milestone Events**. The Opt-Out DT Co-Co Milestone Payments to be made by the Primary Party to the Opt-Out Party pursuant to Section 7.11.1 (Opt-Out Milestones) with respect to the first occurrence of all DT Co-Co Products Directed Against the DT Co-Co Target of such Opt-Out DT Co-Co Program collectively achieving the below Opt-Out DT Co-Co Product Sales Milestone Events are as follows:

Opt-Out DT Co-Co Product Sales Milestone Event	Opt-Out DT Co-Co Milestone Payment
First Calendar Year in which annual Net Sales of all DT Co-Co Products Directed Against the DT Co-Co Target in the Territory exceed [***]	[***]
First Calendar Year in which annual Net Sales of all DT Co-Co Products Directed Against the DT Co-Co Target in the Territory exceed [***]	[***]
First Calendar Year in which annual Net Sales of all DT Co-Co Products Directed Against the DT Co-Co Target in the Territory exceed [***]	[***]
First two consecutive Calendar Years in each of which annual Net Sales of all DT Co-Co Products Directed Against the DT Co-Co Target in the Territory exceed [***]	[***]

The maximum total amount payable under this Section 7.11.1 (Opt-Out Milestones) shall not exceed two hundred million Dollars ($200,000,000) per DT Co-Co Target. If more than one Opt-Out DT Co-Co Product Sales Milestone Event is achieved in the same Calendar Year, the Primary Party shall pay the Opt-Out Party all Opt-Out DT Co-Co Milestone Payments for such Opt-Out DT Co-Co Product Sales Milestone Events achieved in such Calendar Year in accordance with this Section 7.11.1 (Opt-Out Milestones).

The Primary Party shall provide prompt written notice to the Opt-Out Party upon achievement of an Opt-Out DT Co-Co Product Sales Milestone Event. The Opt-Out Party shall send an invoice for the applicable Opt-Out DT Co-Co Milestone Payment within sixty (60) days after receiving the written notice from the Primary Party.

7.11.2 **Opt-Out Royalties**.

(a) **Royalties**. The Primary Party shall pay the Opt-Out Party, on a DT Co-Co Product-by-DT Co-Co Product and country-by-country basis, royalties as set forth below on annual Net Sales of such DT Co-Co Products Directed Against the DT Co-Co Target in the DT Co-Co Program in the Territory, as calculated by multiplying the applicable royalty rate set forth below by the corresponding portion of annual Net Sales of such DT Co-Co Product in such country, until the latest to occur of (i) the date of expiration of the last-to-expire Valid Claim of any Patents within the Licensed DT Co-Co Technology licensed by the Opt-Out Party to the Primary Party under Section 5.5 (DT Co-Co Program License) that Cover the composition-of-matter or use of at least one (1) mRNA Construct, or a Gene Editing protein encoded by a mRNA Construct, contained in such DT Co-Co Product in such country in the Territory, (ii) the date of expiration of marketing or Regulatory Exclusivity for such DT Co-Co Product in such country in the Territory, or (iii) the date that is ten (10) years from First Commercial Sale of such DT Co-Co Product in such country in the Territory (the "**Opt-Out Royalty Term**"):

If Opt-Out Occurs	Opt-Out Royalty Rate
[***]	[***]
[***]	[***]

(b) **Valid Claim**. On a DT Co-Co Product-by-DT Co-Co Product and country-by-country basis, with respect to a DT Co-Co Product that is subject to royalties under this Section 7.11.2 (Opt-Out Royalties), at any time during the Opt-Out Royalty Term when no Valid Claim (including in the event of expiration) of any Patents within the Licensed DT Co-Co Technology licensed by the Opt-Out Party to the Primary Party Covers such DT Co-Co Product in a country, the royalty rates provided in Section 7.11.2(a) (Royalties) for such DT Co-Co Product shall immediately be reduced in such country by [***] and shall remain so reduced for the remainder of the Opt-Out Royalty Term for so long as there is no such Valid Claim.

(c) **Biosimilar Products**. On a country-by-country and DT Co-Co Product-by-DT Co-Co Product basis, with respect to a DT Co-Co Product that is subject to royalties under this Section 7.11.2 (Opt-Out Royalties), from and after the first Calendar Year in which a Biosimilar Product is sold in a given country and has achieved (i) [***] unit sales in such country in the market segment in which such DT Co-Co Product competes in such country, the royalties payable pursuant to Section 7.11.2(a) (Royalties) for such DT Co-Co Product shall be reduced in such country by [***] of the royalties otherwise payable under Section 7.11.2(a) (Royalties) and (ii) [***] unit sales in such country in the market segment in which such Licensed Product competes in such country, the royalties payable pursuant to Section 7.11.2(a) (Royalties) for such DT Co-Co Product shall be reduced in such country by [***] of the royalties otherwise payable under Section 7.11.2(a) (Royalties).

(d) **Third Party Payments**. If the Primary Party or any of its Affiliates or sublicensees in-licenses any right to any intellectual property from a Third Party that is necessary or reasonably useful to conduct the Research, Development, Commercialization, making, having made, use, keeping, importation, exportation, offering for sale, sale or other Exploitation of an applicable DT Co-Co Product in the Territory that is subject to royalties under this Section 7.11.2 (Opt-Out Royalties) (or milestone payments under Sections 7.11.1(a) (Opt-Out DT Co-Co Product Development and Regulatory Milestone Events)) or 7.11.1(b) (Opt-Out DT Co-Co Product Sales Milestone Events), the Primary Party may deduct [***] of any and all milestone, royalty, and other payments (including required reimbursement for costs incurred in connection with enforcement or other actions and required sharing of certain recoveries) paid by it to such Third Party (which, for the avoidance of doubt, include the Primary Party's Third Party Payment pursuant to the last sentence of Sections 5.10.3(b) (Payments under Co-Co Moderna In-License Agreements) and 5.10.4(b) (Payments under Co-Co Metagenomi In-License Agreements), respectively, Moderna's Third Party Payment pursuant to Section 5.10.5 (Metagenomi Payments for Certain Technology) and Metagenomi's Third Party Payment pursuant to 5.10.6 (Moderna Payments for Certain Technology), as applicable) from any royalty payments to the Opt-Out Party under this Section 7.11.2 (Opt-Out Royalties) or milestone payments under Sections 7.11.1(a) (Opt-Out DT Co-Co Product Development and Regulatory Milestone Events) or 7.11.1(b) (Opt-Out DT Co-Co Product Sales Milestone Events) for each such DT Co-Co Product.

(e) **Cumulative Reductions Floor**. In no event will the aggregate amount of royalties due to the Opt-Out Party for a DT Co-Co Product in a country in the Territory in any given Calendar Quarter during the Opt-Out Royalty Term for such DT Co-Co Product in such country be reduced by more than [***] of the amount that otherwise would have been due and payable to the Primary Party in such Calendar Quarter for such DT Co-Co Product in such country as a result of the reductions set forth in Section 7.11.2(b) (Valid Claims), Section 7.11.2(c)

(Biosimilar Products) and Section 7.11.2(d) (Third Party Payments), except in the event of Section 5.10.5 (Metagenomi Payments for Certain Technology) or Section 7.11.2(c)(ii) (Biosimilar Products), which, for clarity, may result in up to [***] reduction of the royalties. The Primary Party may carry forward any such reductions permitted in accordance with Section 7.11.2(b) (Valid Claims), Section 7.11.2(c) (Biosimilar Products) and Section 7.11.2(d) (Third Party Payments) that are incurred or accrued in a Calendar Quarter but that are not applied against royalties due to the Opt-Out Party for such DT Co-Co Product in such country in such Calendar Quarter as a result of the foregoing floor and apply such amounts against royalties due to the Opt-Out Party for such DT Co-Co Product in such country in any subsequent Calendar Quarter (subject to the minimum floor set forth in this Section 7.11.2(e) (Cumulative Reductions Floor)) until the amount of such reduction has been fully applied against royalties due to the Opt-Out Party for such DT Co-Co Product in such country.

7.12 **Payment; Reports; Royalty Minimum**. Royalty payments due under this Article 7 (Fees; Royalties, & Payments) shall be calculated, reported and invoiced for each Calendar Quarter. Within [***] after the end of each Calendar Quarter, Moderna (or the Primary Party, as the case may be) shall provide Metagenomi (or the Opt-Out Party, as the case may be) a report setting forth Net Sales and royalty for each applicable Product in the Territory or Ex-U.S., as applicable, in such Calendar Quarter. Metagenomi (or the Opt-Out Party, as the case may be) shall send an invoice for the applicable royalty payment within [***] after receiving the report from Moderna (or the Primary Party, as the case may be). The applicable royalty payments shall be paid within [***] following the receipt of the invoice.

7.13 **Method of Payment; Foreign Exchange**. Unless otherwise agreed by the Parties, all payments due under this Agreement shall be paid in Dollars by wire transfer or electronic funds transfer of immediately available funds to an account designated by the payee; provided that each Party shall only be required to disburse funds to the payee's jurisdiction of incorporation or to a jurisdiction in which the payee has a significant business presence. For any currency conversion required in determining the amount of payments due hereunder, such conversion shall be made as follows: (a) when calculating Net Sales, the amount of such sales in foreign currencies shall be converted into Dollars using the average rate of exchange over the applicable Calendar Quarter as reported in The Wall Street Journal, Internet U.S. Edition at www.wsj.com, as of the last day of the applicable reporting period (or, if unavailable on such date, the first date thereafter on which such rate is available), and (b) when calculating all other sums due under this Agreement, the amount in foreign currencies shall be converted into Dollars using the average rate of exchange for the applicable month as reported in The Wall Street Journal, Internet U.S. Edition at www.wsj.com, as of the last day of the applicable month (or, if unavailable on such date, the first date thereafter on which such rate is available).

7.14 **Records and Audits**. Each Party shall keep, and shall cause its Affiliates and Sublicensees to keep, complete and accurate records which may be necessary to ascertain properly and to verify the royalty payments due hereunder. Such records shall be kept for such period of time required by Applicable Laws. Within the Term, the other Party shall not more than once each year have the right to have its independent, certified public accountant inspect such Party's records for the purpose of determining the accuracy of royalty payments for a period covering not more than [***] following the Calendar Quarter to which they pertain. No period shall be audited more than once. The other Party shall submit an audit plan, including audit scope, to such Party for its

approval, which shall not be unreasonably withheld, conditioned or delayed, prior to audit implementation. The independent, certified public accountant selected shall keep confidential any information obtained during such inspection and shall report to the Parties only the amounts of Net Sales and royalties due and payable. Such audits may be exercised during normal business hours upon reasonable prior written notice to such Party. If determined that additional royalties are owed, or that royalties were overpaid, during such period, such Party shall pay the other Party the additional royalties or the other Party shall pay such Party the overpaid royalties, as applicable, within [***] of the date the independent, certified public accountant's written report is received by the paying Party. The fees charged by the accounting firm of such accountant shall be paid by the auditing Party unless any additional royalties owed exceed [***] and [***] of the royalties paid for the royalty period subject to the audit, in which case the audited Party shall pay the reasonable fees of such accounting firm.

7.15 **Default Interest**. If and to the extent that either Party fails to make any payment hereunder when due in accordance with the applicable provisions of this Agreement (excluding any payment made due to a good faith error identified via an audit conducted by an independent, certified public accountant pursuant to Section 7.14 (Records and Audits)), such Party shall pay to the other Party default interest at a rate of [***] as from the due date (as reported in *The Wall Street Journal* (Eastern U.S. edition)) or the maximum rate allowable by Applicable Law, whichever is less. Interest shall be paid on a simple annual interest rate. From and after the Effective Date, the Parties shall meet in good faith and agree on an appropriate replacement for the LIBOR rate to be used in substitution hereunder (with such agreed replacement to be appropriately documented in writing and termed as expressly superseding the operation of this Section 7.15 (Default Interest)), with such agreed replacement to be implemented prior to the [***].

7.16 **Taxes**.

7.16.1 **Partnership Tax Matters**. Each Party shall be solely responsible for the payment of all taxes imposed on its share of income arising directly or indirectly from the collaborative efforts of the Parties under this Agreement. The Parties intend that the DT Co-Co Program gives rise to a partnership solely for U.S. federal and applicable state and local income tax purposes, and shall be governed by the terms of **Schedule M** (Partnership Tax Matters) with respect to the tax matters set forth therein.

7.16.2 **Cooperation and Coordination**. Except as set forth in Section 7.16.1 (Partnership Tax Matters) or **Schedule M** (Partnership Tax Matters) with respect to the DT Co-Co Program, the Parties acknowledge and agree that it is their mutual objective and intent to minimize, to the extent feasible and in compliance with Applicable Laws, taxes payable with respect to their collaborative efforts under this Agreement and that they shall use reasonable efforts to cooperate and coordinate with each other to achieve such objective. Each Party shall provide the other with reasonable assistance to enable the recovery, as permitted by Applicable Law, of withholding taxes resulting from payments made under this Agreement, such recovery to be for the benefit of the Party bearing such withholding tax.

7.16.3 **Payment of Tax**. Except as set forth in Section 7.16.1 (Partnership Tax Matters) or **Schedule M** (Partnership Tax Matters) with respect to the DT Co-Co Program, the upfront, milestones, royalties and other amounts payable by one Party to the other Party under this Agreement (each, a "**Payment**") shall be paid free and clear of any and all taxes, except for any withholding taxes required by Applicable Law. Except as provided in this Section 7.16.3 (Payment of Tax), the payee shall be solely responsible for paying any and all taxes (other than withholding taxes required by Applicable Law to be deducted from Payments and remitted by the payor) levied on account of, or measured in whole or in part by reference to, any Payments it receives. The payor shall deduct or withhold from the Payments any taxes that it is required by Applicable Law to deduct or withhold. Notwithstanding the foregoing, if the payee is entitled under any applicable tax treaty to a reduction of rate of, or the elimination of, applicable withholding tax, it may deliver to the payor or the appropriate Governmental Authority (with the assistance of the payor to the extent that this is reasonably required and is expressly requested in writing) the prescribed forms necessary to reduce the applicable rate of withholding or to relieve the payor of its obligation to withhold such tax and the payor shall apply the reduced rate of withholding or dispense with withholding as the case may be; provided that the payor has received evidence, in a form satisfactory to the payor, of the payee's delivery of all applicable forms (and, if necessary, its receipt of appropriate governmental authorization) at least [***] prior to the time Payments are due. If in accordance with the foregoing, the payor withholds any amounts of tax, it shall pay to the payee the balance when due, make timely payment to the proper tax authority of the withheld amount and send to the payee proof of such payment within [***] following such payments. If the paying party failed to deduct or withhold tax required by Applicable Law, the payee shall indemnify and hold harmless the paying party from any such taxes and further, shall assist the paying party with regard to all procedures required in order to obtain relief and, if appropriate, reimbursement by tax authorities (including providing proof, if applicable, that the appropriate tax has in fact been paid by the payee) or, in case tax authorities will not reimburse withholding tax to the paying party, the payee will immediately pay to the paying party (for remittance to the appropriate taxing authority to the extent not previously paid to such authorities by the paying party) the amount of such tax not previously paid by the payee to the appropriate taxing authority.

Article 8
INTELLECTUAL PROPERTY

8.1 **Ownership of Intellectual Property**.

8.1.1 **Inventorship**. Inventorship as between the Parties shall be determined in accordance with U.S. patent laws. All such determinations shall be documented to ensure any patent applications and patents reflect appropriate inventorship.

8.1.2 **Ownership of Intellectual Property**.

(a) Except as expressly set forth herein otherwise, as between the Parties, any and all Results and Know-How, whether patentable or not, conceived, discovered, invented or created in the course of performing the activities or exercising their rights under this Agreement solely by a Party or jointly by the Parties, their Affiliates, or Third Parties acting on its or their behalf, and all intellectual property rights inherent therein and appurtenant thereto, including all Patents, copyrights, trademarks, and trade secrets arising therefrom (collectively, "**Program Technology**") shall be owned in accordance with inventorship rules under U.S. patent law.

(b) Notwithstanding anything herein to the contrary, Metagenomi shall solely own all right, title and interest to any Program Technology [***] (collectively, "**Metagenomi Program Technology**"). Moderna hereby assigns, transfers and conveys to Metagenomi, or its designee, all of Moderna's worldwide right, title and interest in and to any and all Metagenomi Program Technology. Metagenomi agrees to grant and hereby grants Moderna and its Affiliates a perpetual, irrevocable, worldwide, royalty-free, sublicensable (through multiple tiers of sublicensees), transferable (solely in accordance with Section 14.7 (Assignment)), non-exclusive license, under all Metagenomi Program Technology to the extent pertaining to [***].

(c) Notwithstanding anything herein to the contrary, Moderna shall solely own all right, title and interest to any Program Technology [***] ("**Moderna Program Technology**"). Metagenomi hereby assigns, transfers and conveys to Moderna, or its designee, all of Metagenomi's worldwide right, title and interest in and to any and all Moderna Program Technology.

(d) Notwithstanding anything herein to the contrary, any Program Technology discovered, invented, conceived or created during the applicable Research Term that is neither Metagenomi Program Technology nor Moderna Program Technology shall be jointly owned by Moderna and Metagenomi ("**Joint IP**"). Each Party shall and hereby does assign to the other Party an undivided one-half interest in such first Party's right, title, and interest in and to all Joint IP made by or on behalf of such first Party. Subject to the licenses granted hereunder and the other terms and conditions of this Agreement, each Party may exercise its ownership rights in and to Joint IP, including the right to license and sublicense or otherwise to exploit, transfer or encumber its ownership interest, throughout the world, without an accounting or obligation (including paying royalties) to, or consent required from, the other Party. At the reasonable written request of a Party, the other Party shall take such further actions to confirm that no such accounting is required or to otherwise effect the foregoing regarding Joint IP. Each Party agrees to hold Joint IP (and any Know-How therein) in confidence subject to the same permitted disclosures set forth in Article 11 (Confidentiality) (applied *mutatis mutandis* to the Joint IP consistent with each Party's rights to exploit the Joint IP) and shall not disclose such Know-How to a Third Party unless under terms of confidentiality that preserve the Parties' ability to pursue Patents as set forth hereunder.

8.1.3 **Assignment Obligation**. Each Party shall cause all employees, independent contractors, consultants, and others who perform activities for such Party under this Agreement to be under an obligation to assign to such Party their rights in and to any Program Technology and all intellectual property rights therein, except where Applicable Laws requires otherwise and except in the case of governmental, not-for-profit and public institutions that have standard policies against such an assignment (in which case a Party shall obtain a suitable license, preferably exclusive, or right to obtain such a license). Each Party shall use reasonable efforts to promptly disclose to the other Party all Program Technology, including any invention disclosures, or other similar documents, submitted to it by its employees, agents or independent contractors describing such Program Technology, and all information relating to such Program Technology to the extent necessary or useful for the preparation, filing and maintenance of any Patent with respect to such Program Technology.

8.2 **Patent Prosecution and Maintenance**.

8.2.1 **Generally**. Subject to the remainder of this Section 8.2 (Patent Prosecution and Maintenance), each Party shall control the Prosecution and Maintenance of Patents that such Party Controls (other than Control obtained pursuant to a grant of rights under this Agreement).

8.2.2 **Patents Within Metagenomi's Background Technology**. As between the Parties, Metagenomi shall have the first right, but not the obligation, to Prosecute and Maintain any Patents within Metagenomi's Background Technology, at its sole expense. Metagenomi shall keep Moderna reasonably informed of the status of all Patents relevant to an applicable Program and shall promptly provide Moderna with all material correspondence received from any patent authority in connection therewith. In addition, Metagenomi shall provide Moderna with drafts of all proposed material filings and correspondence to any patent authority with respect to any such Patents for Moderna's review with reasonable time for Moderna to provide comments prior to the submission of such proposed filings and correspondences, and Metagenomi shall consider Moderna's reasonable comments in good faith. Notwithstanding anything herein to the contrary, in connection with such Prosecution and Maintenance, Metagenomi shall take all reasonable steps to ensure that such Patents Cover the applicable Products. Metagenomi shall notify Moderna of its intention to suspend or cease any Prosecution and Maintenance of any such Patents. Metagenomi shall provide such notice at least [***] prior to any filing or payment due date in connection with such Patents. In such event, Metagenomi shall permit Moderna, at Moderna's discretion and at its sole expense, to continue Prosecution and Maintenance of such Patents, subject to the foregoing information sharing obligation and review and comment rights applied *mutatis mutandis*. The Parties shall in good faith cooperate through the JPC (or as otherwise agreed in an applicable Working Group or by the Parties) to effect the foregoing.

8.2.3 **Program Patents Exclusively Licensed to Moderna**. As between the Parties, Moderna shall have the first right, but not the obligation, to Prosecute and Maintain any Program Patents licensed exclusively to Moderna by Metagenomi under this Agreement, and Moderna shall bear the cost of such Prosecution and Maintenance. [***].

8.2.4 **Joint Patents**. Subject to Section 8.2.3 (Program Patents Exclusively Licensed to Moderna), the JPC shall determine which Party has the first right, but not the obligation, to Prosecute and Maintain all Joint Patents. [***].

8.2.5 **Cooperation of the Parties**. Each Party shall cooperate fully with the other Party, through the JPC, in the Prosecution and Maintenance of Patents under this Section 8.2 (Patent Prosecution and Maintenance) at its own cost (except as expressly set forth otherwise in this Article 8 (Intellectual Property)), including by: (a) executing all papers and instruments, or requiring its employees or contractors, to execute such papers and instruments, to enable the other Party to apply for and to Prosecute and Maintain such Patents in any country as permitted by this Section 8.2 (Patent Prosecution and Maintenance) and (b) promptly informing the other Party of any matters coming to such Party's attention that may affect the Prosecution and Maintenance of any such Patents.

8.3 **Infringement by Third Parties**.

8.3.1 **Notice**. Each Party shall notify the other within [***] of becoming aware of any alleged or threatened infringement by a Third Party of any of the Program Patents or Patents within either Party's Background Technology, which infringing activity involves the using, making, importing, offering for sale or selling any (i) Product, any (ii) Biosimilar Product with respect thereto, or (iii) for each Collaboration Target, otherwise involving such Collaboration Target and Gene Editing in such Collaboration Target's respective field, i.e., in the DT Field or the RT Field, as applicable, in each case ((i) through (iii)) in the applicable DT Field or RT Field in the Territory, and any related declaratory judgment, opposition or similar action alleging the invalidity, unenforceability or non-infringement of any of the Program Patents or Patents within either Party's Background Technology (collectively "**Infringement**").

8.3.2 **Generally**. Subject to the remainder of this Section 8.3 (Infringement by Third Parties), each Party shall have the sole right to bring and control any legal action in connection with any Infringement of Patents claiming inventions that such Party Controls (other than Control obtained pursuant to a grant of rights under this Agreement).

8.3.3 **Patents Within Metagenomi's Background Technology**.

(a) As between the Parties, Moderna shall have the first right to bring and control any legal action in connection with any Infringement of any Patents within Metagenomi's Background Technology, where such Infringement relates to [***]. Moderna shall keep Metagenomi reasonably informed of the status of such enforcement efforts for such Patents. Metagenomi may, at its own expense, be represented in any such action by counsel of its own choice with respect to the enforcement of any such Patents. If Moderna does not bring such legal action within a commercially reasonable period of time (but not less than [***]) after the notice provided pursuant to Section 8.3.1 (Notice), Metagenomi may bring and control any legal action in connection with such Infringement of such Patents at its own expense as it reasonably determines appropriate so long as Moderna does not reasonably object to such action. In such case, Metagenomi shall keep Moderna reasonably informed of the status of such enforcement efforts for such Patents, and Moderna may, at its own expense, be represented in any such action by counsel of its own choice with respect to the enforcement of such Patents.

(b) As between the Parties, Metagenomi shall have the first right to bring and control any legal action in connection with any Infringement of any Patents within Metagenomi's Background Technology, where such Infringement relates to [***], in each case at Metagenomi's own expense (and, for clarity, whether or not such Infringement falls within the scope of any license granted to Metagenomi hereunder). Metagenomi shall keep Moderna reasonably informed of the status of such enforcement efforts for such Patents. Moderna may, at its own expense, be represented in any such action by counsel of its own choice with respect to the enforcement of any such Patents. If Metagenomi does not bring such legal action within a commercially reasonable period of time (but not less than [***]) after the notice provided pursuant to Section 8.3.1 (Notice), Moderna may bring and control any legal action in connection with such Infringement of such Patents at its own expense as it reasonably determines appropriate so long as Metagenomi does not reasonably object to such action. In such case, Moderna shall keep Metagenomi reasonably informed of the status of such enforcement efforts for such Patents, and Metagenomi may, at its own expense, be represented in any such action by counsel of its own choice with respect to the enforcement of such Patents.

8.3.4 **Program Patents Exclusively Licensed to Moderna**.

[***]

8.3.5 **Joint Patents**. Subject to Section 8.3.4 (Program Patents Exclusively Licensed to Moderna), the JPC shall determine which Party has the first right, but not the obligation, to bring and control any legal action in connection with any Infringement of any Joint Patents, subject to either Party electing to so enforce at the enforcing Party's sole expense. The enforcing Party shall keep the other Party reasonably informed of the status of such enforcement efforts for such Joint Patents and shall consider in good faith such other Party's comments thereon. The enforcing Party shall provide the other Party with drafts of all material papers to be filed with the court and shall in good faith incorporate all reasonable comments thereto by such other Party before filing such papers. The other Party may, at its own expense, be represented in any such action by counsel of its own choice. If the enforcing Party does not bring such legal action within a commercially reasonable period of time (but not less than [***]) after the notice provided pursuant to Section 8.3.1 (Notice), the other Party may bring and control any legal action in connection with such Infringement of any such Program Patents at its own expense as it reasonably determines appropriate.

8.3.6 **Biosimilar Applications**. Notwithstanding the foregoing provisions of this Section 8.3 (Infringement by Third Parties), if either Party or any of their Affiliates receives a copy of a Biosimilar Application naming a Product as a reference product or otherwise becomes aware that such a Biosimilar Application has been filed (such as in an instance described in Section 351(1)(9)(C) of the PHSA), such Party shall promptly notify the other Party. If either Party receives any equivalent or similar certification or notice in the U.S. or any other jurisdiction, either Party shall, promptly, notify and provide the other Party copies of such communication.

(a) For all Licensed Products, Moderna, and for all DT Co-Co Products, the Party designated by the JSC, (in either case, the "**Designated Party**") shall designate pursuant to Section 351(l)(1)(B)(ii) of the PHSA the outside counsel and in-house counsel who shall receive confidential access to the Biosimilar Application.

(b) The Designated Party shall have the right, after consulting with the other Party, to list any Program Patents or Patents within either Party's Background Technology, insofar as they meet the statutory requirements pursuant to Section 351(l)(1)(3)(A), Section 351(l)(5)(b)(i)(II), or Section 351(l)(7) of the PHSA, to respond to any communications with respect to such lists from the filer of the Biosimilar Application, and to negotiate with the filer of the Biosimilar Application as to whether to utilize a different mechanism for information exchange other than that specified in Section 351(l) of the PHSA.

(c) The Designated Party shall have the right, after consulting with the other Party, to identify Program Patents or Patents within either Party's Background Technology to list, or respond to relevant communications under any equivalent or similar listing to those described in the preceding Section 8.3.6(b) (Biosimilar Applications) in any other jurisdiction outside of the U.S. If required pursuant to Applicable Law, upon the Designated Party's request, the other Party shall assist in the preparation of such list and make such response after consulting with the Primary Party.

(d) The Parties recognize that procedures other than those set forth above in this Section 8.3.6 (Biosimilar Applications) may be applicable to Biosimilar Applications that are not governed by the PHSA. As a result, in the event that the Parties acting in good faith mutually determine that certain provisions of Applicable Laws in the U.S. or in any other country in the Territory are applicable to actions taken by the Parties with respect to Biosimilar Applications under this Section 8.3.6 (Biosimilar Applications) in such country, the Parties shall comply with any such Applicable Law in such country in exercising their rights and obligations with respect to Biosimilar Applications under this Section 8.3.6 (Biosimilar Applications).

8.3.7 **Enforcement Costs for Co-Co Products**. Except as expressly set forth herein, all Internal Costs and External Costs incurred by the Parties in connection with any suit or other action brought by a Party under this Section 8.3.7 (Enforcement Costs for Co-Co Products) with respect to any Infringement regarding a DT Co-Co Product in the Territory shall be considered "**Shared Patent Enforcement Costs**" that shall be shared [***] between the Parties as an Other Operating Expense in accordance with Section 7.4 (Co-Co Products Profit and Loss Share).

8.3.8 **Allocation of Recoveries for Co-Co Products**. Any recoveries resulting from enforcement action relating to a claim of Infringement regarding a DT Co-Co Product in the Territory, whether by settlement or judgment, shall be allocated as follows: [***].

8.3.9 **Allocation of Recoveries for Licensed Products**. Any recoveries resulting from enforcement action relating to a claim of Infringement regarding a Licensed Product, whether by settlement or judgment, shall [***].

8.3.10 **Allocation of Recoveries in All Other Infringements**. [***].

8.3.11 **Cooperation**. At the request and expense of the Party bringing an action under this Section 8.3 (Infringement by Third Parties), the other Party shall provide reasonable assistance in connection therewith, including by executing reasonably appropriate documents, cooperating in discovery and joining as a party to the action if required by Applicable Laws to pursue such action. In connection with any such enforcement action, the Party bringing the action shall not enter into any settlement admitting the invalidity or non-infringement of, or otherwise impairing the other Party's rights in the applicable Patents without the prior written consent of the other Party.

8.4 **Defense and Settlement of Third Party Claims**. Each Party shall promptly notify the other in writing of (a) any allegation by a Third Party that the activity of either of the Parties pursuant to this Agreement infringes or may infringe the intellectual property rights of such Third Party, including any inter partes review proceeding at the U.S. Patent and Trademark Office or foreign equivalent patent office (each a "**Third Party Claim**"), or (b) any declaratory judgment action that is brought naming either Party as a defendant and alleging invalidity of any of the Program Patents other than in response to an Infringement action under Section 8.3 (Infringement by Third Parties) (each a "**Third Party Patent Challenge**").

8.4.1 **Responsibility to Defend a Third Party Claim**. Each Party that is named as a defendant in a Third Party Claim proceeding shall have the right to defend itself in such proceeding. The other Party shall reasonably assist the defending Party in defending such proceeding and cooperate in any such litigation at the request and expense of the defending Party. The defending Party shall provide the other Party with prompt written notice of the commencement of any such proceeding and shall keep the other Party apprised of the progress of such proceeding and shall promptly furnish the other Party with a copy of each pleading, communication, or other document relating to the alleged infringement that is received by such Party and shall consider reasonable input from the other Party during the course of the proceeding. If the defending Party is Metagenomi, then Moderna shall be entitled to attend any substantive meetings, hearings, or other proceedings related to such claim (to the extent relevant, together with its own counsel, at its own expense). If the defending Party is Moderna, then Metagenomi shall be entitled to attend any substantive meetings, hearings, or other proceedings related to such claim (to the extent relevant, together with its own counsel, at its own expense). If both Parties are named as defendants in any such proceeding brought by a Third Party, both Parties may defend such proceeding and the Parties shall reasonably cooperate with respect to such defense.

8.4.2 **Right to Defend and Settle a Third Party Patent Challenge**. The prosecuting Party shall have the first right, but not the obligation, to control the defense of any Third Party Patent Challenge relating to any Patent for which it is the prosecuting Party and to compromise, litigate, settle, or otherwise dispose of any such challenge, provided that if the prosecuting Party notifies the non-prosecuting Party that it declines to exercise such first right, then the non-prosecuting Party shall have the right to control such defense and to compromise, litigate, settle or otherwise dispose of such challenge. The Party defending the Third Party Patent Challenge shall keep the other Party timely informed of the proceedings and filings, and provide the other Party with copies of all material communications, pertaining to each Third Party Patent Challenge. The Party defending the Third Party Patent Challenge shall not settle, stipulate to any facts, or make any admission with respect to any Third Party Patent Challenge without the other Party's prior written consent (not to be unreasonably withheld, conditioned or delayed) if such settlement, stipulation, or admission would (a) adversely affect the validity, enforceability or scope, or admit infringement, of any of the Program Patents; (b) give rise to liability of the other Party or its Affiliates; or (c) otherwise impair the other Party's or any of its Affiliates' rights in the Program Patents under this Agreement. Upon the defending Party's request, the other Party shall reasonably cooperate with the defending Party, to the extent necessary to defend the Third Party Patent Challenge.

8.4.3 **Costs, Damages, and Recoveries**.

(a) **Costs of Defending Patent Challenges**. Each Party shall bear its own Internal Costs related to any Third Party Patent Challenge, and each Party shall be responsible for [***] of the External Costs incurred with respect to any Third Party Patent Challenge of a Patent relating to a DT Co-Co Product in the Territory and such External Costs shall be considered "**Shared Patent Defense Costs**" that shall be shared [***] between the Parties as an Other Operating Expense in accordance with Section 7.4 (Co-Co Products Profit and Loss Share). The other Party shall reimburse the Party defending such Third Party Patent Challenge for its share of such External Costs pursuant to the preceding sentence either (i) through the Operating Profits or Losses reimbursement procedure set forth in Section 7.4 (Co-Co Products Profit and Loss Share) or (ii) within thirty (30) days of receiving the defending Party's invoice therefor, as applicable.

(b) **Licensed Products**. Subject to Article 10 (Indemnification), with respect to any Third Party Claim for allegedly infringing activities conducted with respect to a Licensed Product in the Territory, the Party against whom such claim was brought shall bear [***] of such cost, damages, or recovery.

(c) **Co-Co Products**. Subject to Article 10 (Indemnification), with respect to any Third Party Claim for allegedly infringing activities conducted with respect to a DT Co-Co Product in the Territory, (i) the Internal Costs and External Costs in defending and any damages paid by the defending Party shall be considered "**Shared Infringement Defense Costs**" that will be shared [***] between the Parties as an Other Operating Expense in accordance with Section 7.4 (Co-Co Products Profit and Loss Share) and (ii) any recoveries obtained shall be considered Net Sales of the DT Co-Co Product in the Territory, if applicable.

(d) **Other Damages and Recoveries**. Subject to Article 10 (Indemnification), with respect to any Third Party Claim other than claims described in Section 8.4.3(b) (Licensed Products) or Section 8.4.3(c) (Co-Co Products), the Party against whom such claim was brought shall bear [***] of such cost, damages, or recovery.

8.5 **Patent Extension**. [***].

8.6 **Unified Patent Court**. In the event that Unified Patent Court Agreement enters into force during the Term of this Agreement, the JPC shall be solely responsible for making all decisions regarding Patents, including decisions regarding the opting-out or opting-in of existing European Patents into the jurisdiction of the Unified Patent Court or the registration of European Patents with Unitary Effect.

8.7 **Common Interest**. All information exchanged between the Parties regarding the prosecution, maintenance, enforcement, and defense of Patents under this Article 8 (Intellectual Property) shall be the Confidential Information of the disclosing Party. In addition, the Parties acknowledge and agree that, with regard to such prosecution, maintenance, enforcement, and defense the interests of the Parties as collaborators and licensor and licensee are to obtain the strongest patent protection possible, and as such, are aligned and are legal in nature. The Parties agree and acknowledge that they have not waived, and nothing in this Agreement constitutes a waiver of, any legal privilege concerning the Patents under this Article 8 (Intellectual Property), including privilege under the common interest doctrine and similar or related doctrines. Notwithstanding anything to the contrary set forth in this Agreement, to the extent a Party has a good faith believe that any information required to be disclosed by such Party to the other Party under this Article 8 (Intellectual Property) is protected by attorney-client privilege or any other applicable legal privilege or immunity, such Party shall not be required to disclose such information and the Parties shall in good faith cooperate to agree upon a procedure (including entering into a specific common interest agreement, disclosing such information on a "for counsel eyes only" basis or similar procedure) under which such information may be disclosed without waiving or breaching such privilege or immunity.

8.8 **Trademarks**. Moderna shall have the right to select, and shall be free, in its sole discretion, to use and to register in any trademark office in the Territory, any Trademark for use with a Licensed Product. As between the Parties, Moderna shall own all right, title and interest in and to any such Trademarks adopted by Moderna for use with a Licensed Product, and is responsible for the registration, filing, maintenance and enforcement thereof.

Article 9
REPRESENTATIONS, WARRANTIES AND COVENANTS

9.1 **Mutual Representations and Warranties**. Each of Moderna and Metagenomi represent and warrant, as of the Effective Date, that:

9.1.1 it is duly organized and validly existing under in the Applicable Laws of the jurisdiction of its incorporation or formation, as applicable, has full corporate, limited liability company or other power and authority, as applicable, to enter into this Agreement and to carry out the provisions hereof, and has sufficient facilities, experienced personnel or other capabilities (including via Affiliates or Third Parties) to enable it to perform its obligations under this Agreement;

9.1.2 it is duly authorized to execute and deliver this Agreement and to perform its obligations hereunder, and the individual executing this Agreement on its behalf has been duly authorized to do so by all requisite corporate, limited liability company or other action, as applicable; and

9.1.3 this Agreement is legally binding upon it and enforceable in accordance with its terms (except as the enforceability thereof may be limited by bankruptcy, bank moratorium or similar laws affecting creditors' rights generally and laws restricting the availability of equitable remedies and may be subject to general principles of equity whether or not such enforceability is considered in a proceeding at law or in equity) and the execution, delivery and performance of this Agreement by it have been duly authorized by all necessary corporate action and do not and shall not: (a) conflict with, or constitute a default or result in a breach under, any agreement, instrument or understanding, oral or written, to which it is a party or by which it may be bound, or violate any Applicable Law; or (b) require any consent or approval of its stockholders or similar.

9.2 **Metagenomi Representations and Warranties**. Metagenomi represents and warrants to Moderna that, as of the Effective Date:

9.2.1 **No DT Co-Co Target or Reserved DT Targets Encumbered**. There are no DT Co-Co Target or Reserved DT Targets that are subject to an agreement between Metagenomi or any of its Affiliates and a Third Party of any kind or Metagenomi's (or its Affiliates') commitment to negotiate an agreement with a Third Party that would prevent, limit or conflict with the inclusion of the DT Co-Co Target or Reserved DT Targets under this Agreement on an exclusive basis or licenses granted herein.

9.2.2 **Metagenomi Not Developing Products Against RT Targets in the RT Field or DT Targets in the DT Field**. Metagenomi itself is not (and none of its Affiliates is) developing any products Directed Against or that work through, or are based on, and has granted no rights to any Third Party with respect to, any RT Target within the RT Field or any DT Target within the DT Field.

9.2.3 **No Grants That Conflict with This Agreement**. Metagenomi or its Affiliates have not granted, and shall not grant during the Term, any rights (or other encumbrances) to any Third Party to Metagenomi Licensed Collaboration Technology that would prevent, limit or conflict with the rights and licenses granted to Moderna hereunder.

9.2.4 **Control over Know-How and Patents**. Metagenomi has Control over all Know-How and Patent rights owned by it or its Affiliates as of the Effective Date that are necessary or reasonably useful for the Research, Development, Manufacturing (including formulation), Commercialization or other Exploitation of the DT Co-Co Products as known to be contemplated under this Agreement as of the Effective Date. To Metagenomi's knowledge, the Regents of the University of California ("**UC**") has no right and has no reason to claim any right in any such Know-How or Patent rights that would prevent, limit or conflict with the rights and licenses granted to Moderna hereunder.

9.2.5 **Existing Patents**.

(a) To Metagenomi's knowledge, all Patent rights contained in the Metagenomi Licensed Collaboration Technology existing as of the Effective Date that are issued or subject to a pending application for issuance (the "**Existing Patents**") are listed on **Schedule K** and all such Existing Patents are: (i) to the extent issued (unless otherwise indicated on **Schedule K** (Existing Patents)), subsisting and not invalid or unenforceable, in whole or in part; (ii) solely and exclusively owned by Metagenomi, free of any encumbrance, lien or claim of ownership by any Third Party; (iii) to the extent subject to a pending application for issuance, being diligently prosecuted in the respective patent offices in which such applications have been filed in accordance with Applicable Laws and Metagenomi and its Affiliates have presented all relevant references, documents and information to the relevant patent examiner at the relevant patent office; and (iv) filed and maintained properly and correctly, and no applicable fees applicable thereto when due and payable, as may be or have been extended, have gone unpaid.

(b) To Metagenomi's knowledge, neither Metagenomi nor any of its Affiliates have taken any action that would render any invention claimed in the Existing Patents unpatentable.

(c) The Existing Patents represent all Patents in the Metagenomi Licensed Collaboration Technology that relate to the DT Targets, the Products (anticipated as of the Effective Date), or the Exploitation thereof as of the Effective Date.

(d) To Metagenomi's knowledge, other than the rights granted under this Agreement, no rights or licenses are required under any Patent rights Covering Gene Editing to practice the Metagenomi Licensed Collaboration Technology as contemplated in the Program Plans as of the Effective Date, or to Research, Develop, Manufacture (including to formulate), Commercialize or otherwise Exploit the Products as contemplated herein by reason of the incorporation of Metagenomi Licensed Collaboration Technology in such Products.

(e) None of the Metagenomi Licensed Collaboration Technology is subject to any existing royalty or other payment obligations to any Third Party under any agreement or understanding entered into by Metagenomi or its Affiliates, and Metagenomi has no knowledge of any obligation to pay any royalties or other amounts to any Third Party by reason of Moderna's use thereof as contemplated under this Agreement.

(f) Metagenomi has not given any written notice to any Third Party asserting infringement by such Third Party of any of the Metagenomi Licensed Collaboration Technology and, to Metagenomi's knowledge, there is no unauthorized use, infringement or misappropriation of the Metagenomi Licensed Collaboration Technology.

9.2.6 **No Third Party Agreements**. There are no licenses, terms of use or other agreements or arrangements with Third Parties regarding any Metagenomi Licensed Collaboration Technology or other materials contemplated to be provided by Metagenomi to Moderna hereunder (or the Exploitation of any of the foregoing), to which Metagenomi or its Affiliate is a party or is otherwise bound, that are inconsistent with or diminish the rights and licenses granted to Moderna under this Agreement, or Metagenomi's own right to Exploit them pursuant to this Agreement. Without limiting the generality of the foregoing, none of the metagenomic data or sequence libraries used by Metagenomi to date is subject to any terms of use that are inconsistent with or diminish the rights and licenses granted to Moderna under this Agreement, or Metagenomi's own right to Exploit them pursuant to this Agreement.

9.2.7 **Litigation and Actions Relating to Intellectual Property**. Metagenomi or any of its Affiliates: (a) have not received any written notice of any threatened claims or litigation seeking to invalidate or otherwise challenge the Metagenomi Licensed Collaboration Technology, including any Patents within the Metagenomi Licensed Collaboration Technology, or Metagenomi's or its Affiliates' rights therein; and (b) are not aware of any pending or threatened action, suit, proceeding or claim by a Third Party asserting that Metagenomi or any of its Affiliates is infringing or has misappropriated or otherwise is violating any Patent right, trade secret or other proprietary right of any Third Party as would reasonably be expected to impair the ability of Metagenomi to fulfill any of its obligations under this Agreement.

9.2.8 **Other Material Claims and Actions**. There are no claims, actions or proceedings pending or, to Metagenomi's or any of its Affiliates' knowledge, threatened by any Third Party; nor, to Metagenomi's or any of its Affiliates' knowledge, are there any formal inquiries initiated or written notices received that may lead to the institution of any such legal proceedings, in each case (or in aggregate) against Metagenomi or its properties, assets or business, which if adversely decided, would, individually or in the aggregate, have a material adverse effect on, or prevent Metagenomi's ability to conduct the Research or to grant the licenses or rights granted to Moderna under this Agreement.

9.2.9 **No Government Funding**. The inventions claimed or Covered by the Patents within the Metagenomi Licensed Collaboration Technology: (a) were not conceived, discovered, developed or otherwise made in connection with any research activities funded, in whole or in part, by the federal government of the U.S. of America or any agency thereof; (b) are not a "subject invention" as that term is described in 35 U.S.C. § 201(e) and (c) are not otherwise subject to the provisions of the Patent and Trademark Law Amendments Act of 1980, as amended, codified at 35 U.S.C. §§ 200-212, as amended, as well as any regulations promulgated pursuant thereto, including in 37 C.F.R. Part 401.

9.2.10 **Regulatory Documentation**. To the extent that Metagenomi and its Affiliates have generated, prepared, maintained and retained any Regulatory Documentation under this Agreement that is required to be maintained or retained pursuant to and in accordance with, to the extent applicable, good laboratory and clinical practice and Applicable Laws, all such information is true, complete and correct in all material respects and what it purports to be.

9.2.11 **Data Protection and Data Privacy**. Metagenomi and its Affiliates' have complied with all Applicable Laws related to data protection and data privacy and has provided all legally required privacy notices to, and obtained appropriate consents, including research informed consents, from data subjects ("**Notices and Consents**"), and the Notices and Consents permit the use of the data as currently and previously used and processed by Metagenomi and shall permit the licensing and transfer of all such personal data of data subjects to Moderna as contemplated in this Agreement.

9.2.12 **Confidentiality**. Metagenomi and its Affiliates have used commercially reasonable efforts to protect the confidentiality of those parts of the Metagenomi Licensed Collaboration Technology that constitute confidential or proprietary information of Metagenomi.

9.3 **Moderna Representations and Warranties**. Moderna represents and warrants to Metagenomi that, as of the Effective Date:

9.3.1 **No Grants That Conflict with This Agreement**. Moderna or its Affiliates have not granted, and shall not grant during the Term, any rights (or other encumbrances) to any Third Party to Moderna Licensed Collaboration Technology that would prevent, limit or conflict with the rights and licenses granted to Metagenomi hereunder.

9.3.2 **Control over Know-How and Patents**. Moderna has Control over all Know-How and Patent rights owned by it or its Affiliates as of the Effective Date that are necessary or reasonably useful for the Research, Development, Manufacturing (including formulation), Commercialization or other Exploitation of the DT Co-Co Products as known to be contemplated under this Agreement as of the Effective Date.

9.3.3 **No Third Party Agreements**. There are no license or other agreements with Third Parties regarding the Exploitation of any Moderna Licensed Collaboration Technology or other materials contemplated to be provided by Moderna to Metagenomi hereunder, to which Moderna or its Affiliate is a party that is inconsistent with or diminishes the rights and licenses granted to Metagenomi under this Agreement.

9.3.4 **Litigation and Actions Relating to Intellectual Property**. Moderna or any of its Affiliates: (a) have not received any written notice of any threatened claims or litigation seeking to invalidate or otherwise challenge the Moderna Licensed Collaboration Technology, including any Patents within the Moderna Licensed Collaboration Technology, or Moderna's or its Affiliates' rights therein; and (b) are not aware of any pending or threatened action, suit, proceeding or claim by a Third Party asserting that Moderna or any of its Affiliates is infringing or has misappropriated or otherwise is violating any Patent right, trade secret or other proprietary right of any Third Party as would reasonably be expected to impair the ability of Moderna to fulfill any of its obligations under this Agreement.

9.3.5 **Other Material Claims and Actions**. There are no claims, actions or proceedings pending or, to Moderna's or any of its Affiliates' knowledge, threatened by any Third Party; nor, to Moderna's or any of its Affiliates' knowledge, are there any formal inquiries initiated or written notices received that may lead to the institution of any such legal proceedings, in each case (or in aggregate) against Moderna or its properties, assets or business, which if adversely decided, would, individually or in the aggregate, have a material adverse effect on, or prevent Moderna's ability to conduct the Research or to grant the licenses or rights granted to Metagenomi under this Agreement.

9.3.6 **No Government Funding**. The inventions claimed or Covered by the Patents within the Moderna Licensed Collaboration Technology: (a) were not conceived, discovered, developed or otherwise made in connection with any research activities funded, in whole or in part, by the federal government of the U.S. of America or any agency thereof; (b) are not a "subject invention" as that term is described in 35 U.S.C. § 201(e) and (c) are not otherwise subject to the provisions of the Patent and Trademark Law Amendments Act of 1980, as amended, codified at 35 U.S.C. §§ 200-212, as amended, as well as any regulations promulgated pursuant thereto, including in 37 C.F.R. Part 401.

9.3.7 **Regulatory Documentation**. To the extent that Moderna and its Affiliates have generated, prepared, maintained and retained any Regulatory Documentation under this Agreement that is required to be maintained or retained pursuant to and in accordance with, to the extent applicable, good laboratory and clinical practice and Applicable Laws, all such information is true, complete and correct in all material respects and what it purports to be.

9.3.8 **Data Protection and Data Privacy**. Moderna and its Affiliates' have complied with all Applicable Laws related to data protection and data privacy and has provided all legally required privacy notices to, and obtained appropriate consents, including research informed consents, from data subjects ("**Notices and Consents**"), and the Notices and Consents permit the use of the data as currently and previously used and processed by Moderna and shall permit the licensing and transfer of all such personal data of data subjects to Metagenomi as contemplated in this Agreement.

9.3.9 **Confidentiality**. Moderna and its Affiliates have used commercially reasonable efforts to protect the confidentiality of those parts of the Moderna Licensed Collaboration Technology that constitute confidential or proprietary information of Moderna.

9.4 **Covenants**.

9.4.1 **Employees, Consultants and Contractors**. Each Party represents, warrants and covenants that it and its Affiliates have obtained from each of its and their respective former and current employees, consultants and contractors, and shall obtain from each of its and their respective future employees, consultants and contractors, in each case who have conceived, discovered, invented or created or who may conceive, discover, invent or create any of such Party's Licensed Collaboration Technology, written agreements containing obligations of confidentiality and non-use and an assignment to such Party or its applicable Affiliates of all of such Person's rights to such Licensed Collaboration Technology such that no such employee, contractor or consultant shall retain any rights thereto that would prevent or conflict with the other Party's rights of ownership, license or use thereof or thereto, as the case may be, contemplated under this Agreement.

9.4.2 **Debarment**. Each Party represents, warrants and covenants to the other Party that neither it nor its officers, employees, agents, consultants or any other person used by such Party in the performance of the respective Research and Development activities under this Agreement is: (a) debarred or disqualified under the U.S. Federal Food, Drug and Cosmetic Act; (b) listed by any government or regulatory agencies as ineligible to participate in any government healthcare programs or government procurement or non-procurement programs (as that term is defined in 42 U.S.C. § 1320a-7b(f)), or excluded, debarred, suspended or otherwise made ineligible to participate in any such program; or (c) convicted of a criminal offense related to the provision of healthcare items or services, or is subject to any such pending action. Each Party shall not during the Term knowingly, employ or use, directly or indirectly, including through Affiliates the services of any such person. In the event that either Party becomes aware of the debarment or disqualification or threatened debarment or disqualification of any person providing services to such Party, directly or indirectly, including through Affiliates or, in the case of Moderna, Sublicensees, which directly or indirectly relate to activities contemplated under this Agreement, such Party shall promptly notify the other Party in writing and such Party shall cease employing, contracting with, or retaining any such person to perform any such services.

9.4.3 **The Regents of the University of California**. Metagenomi represents and warrants that none of the Metagenomi Licensed Collaboration Technology in existence as of the Effective Date is in-licensed from UC. In the event that Metagenomi in-licenses from UC any Know-How or Patent rights during the Term of this Agreement that Covers or otherwise relates to any Know-How conceived, discovered, invented or created, in each case as of the Effective Date, by any director, employee, consultant or contractor of Metagenomi as of the Effective Date in their capacity as employee, consultant, contractor or student of UC or during their course of employment, consulting, contractor, or student relationship with UC, Metagenomi hereby covenants that it and its Affiliates shall (i) assume all payment obligations under such in-licenses, notwithstanding anything else herein to the contrary, (ii) ensure that such in-licenses are fully sublicensable to Moderna, (iii) expressly make Moderna an intended third-party beneficiary to such in-licenses, and (iv) ensure that in the event of termination of such in-licenses, Moderna shall become a direct licensee of UC with respect to the Know-How and Patent rights in-licensed from UC to the extent Moderna has rights to such Know-How or Patent rights under this Agreement.

9.4.4 **Open Source Software**. Metagenomi represents, warrants and covenants that any deliverable that Metagenomi provides to Moderna and its Affiliates under this Agreement does not and will not include any open source, copyleft or community source code (including but not limited to any libraries or code, software, technologies or other materials that are licensed or distributed under any General Public License, Lesser General Public License or similar license arrangement or other distribution model described by the Open Source Initiative at www.opensource.org).

9.5 **Compliance**.

9.5.1 **Compliance with this Agreement**. Each of the Parties shall, and shall cause their respective Affiliates to, comply in all material respects with the terms of this Agreement.

9.5.2 **Compliance with Applicable Laws**. Each Party covenants to the other that in the performance of its obligations under this Agreement, such Party shall comply with, and shall cause its Affiliates and its and its Affiliates' employees and contractors to comply, with all Applicable Laws. No Party shall, or shall be required to, undertake any activity under or in connection with this Agreement which violates, or which it believes, in good faith, may violate, any Applicable Laws.

9.5.3 **Compliance with Party-Specific Regulations**. In carrying out their respective obligations under this Agreement, the Parties agree to cooperate with each other as may reasonably be required to help ensure that each is able to fully meet its obligations with respect to all judgments, decrees, orders or similar decisions issued by any Governmental Authority specific to a Party, and all consent decrees, corporate integrity agreements, or other agreements or undertakings of any kind by a Party with any Governmental Authority, in each case as the same may be in effect from time to time and applicable to a Party's activities contemplated under this Agreement (the "**Party-Specific Regulations**"). Neither Party shall be obligated to pursue any course of conduct that would result in such Party being in material breach of any Party-Specific Regulation applicable to it; provided that in the event that a Party refuses to fulfill its obligations under this Agreement in any material respect on such basis, the other Party shall have the right to terminate this Agreement in accordance with Section 12.2 (Termination for Material Breach or Insolvency or Patent Challenge) however, under such circumstances, such termination shall be the sole remedy for such terminating Party and such terminating Party shall not be entitled to any other remedy under law or equity. All Party-Specific Regulations are binding only in accordance with their terms and only upon the Party to which they relate.

9.5.4 **Compliance with Internal Compliance Codes**. All Internal Compliance Codes shall apply only to the Party to which they relate. The Parties agree to cooperate with each other to help ensure that each Party is able to comply with the substance of its respective Internal Compliance Codes and, to the extent practicable, each Party shall operate in a manner consistent with its Internal Compliance Codes applicable to its performance under this Agreement.

9.5.5 **Compliance with Anti-Corruption Laws**. In connection with this Agreement, the Parties shall comply with all applicable local, national, and international laws, regulations, and industry codes dealing with government procurement, conflicts of interest, corruption or bribery, including, if applicable, the U.S. Foreign Corrupt Practices Act of 1977, as amended, and any laws enacted to implement the Organisation of Economic Cooperation and Development Convention on Combating Bribery of Foreign Officials in International Business Transactions.

9.5.6 **Prohibited Conduct**. Without limiting the other obligations of the Parties set forth in this Section 9.5 (Compliance), each Party covenants to the other that, as of the Effective Date and in the performance of its obligations under this Agreement through the expiration or termination of this Agreement, such Party and, to its knowledge, its Affiliates and its and its Affiliates' employees and contractors, in connection with the performance of their respective

obligations under this Agreement, have not made, offered, given, promised to give, or authorized, and shall not make, offer, give, promise to give, or authorize, any bribe, kickback, payment or transfer of anything of value, directly or indirectly through Third Parties, to any Government Official for the purpose of: (a) improperly influencing any act or decision of the Person or Government Official; (b) inducing the Person or Government Official to do or omit to do an act in violation of a lawful or otherwise required duty; (c) securing any improper advantage; or (d) inducing the Person or Government Official to improperly influence the act or decision of any organization, including any government or government instrumentality, to assist any Party in obtaining or retaining business.

9.6 **Disclaimer**. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATIONS OR EXTENDS ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, QUALITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, OR VALIDITY OF PATENT CLAIMS. NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS A REPRESENTATION MADE OR WARRANTY GIVEN BY EITHER PARTY THAT EITHER PARTY SHALL BE SUCCESSFUL IN OBTAINING ANY PATENTS OR THAT ANY PATENTS SHALL ISSUE BASED ON A PENDING APPLICATION. WITHOUT LIMITING THE RESPECTIVE RIGHTS AND OBLIGATIONS OF THE PARTIES EXPRESSLY SET FORTH HEREIN, EACH PARTY SPECIFICALLY DISCLAIMS ANY GUARANTEE THAT THE PRODUCTS SHALL BE SUCCESSFUL, IN WHOLE OR IN PART.

Article 10
INDEMNIFICATION

10.1 **Indemnity**.

10.1.1 **By Metagenomi**. Subject to Section 10.1.3 (Procedure), Metagenomi shall defend, indemnify and hold harmless Moderna and its Affiliates, and their respective directors, officers, employees and agents (each, a "**Moderna Indemnitee**") from and against any and all costs, fees, expenses, losses, liabilities and damages, including reasonable legal expenses and attorneys' fees (collectively, "**Losses**") to which any Moderna Indemnitee may become subject as a result of any claim, demand, action or other proceeding by any Third Party (a "**Claim**") to the extent such Losses arise out of: (a) the gross negligence or willful misconduct of Metagenomi or its Affiliates in connection with its activities under this Agreement; or (b) the breach of this Agreement by Metagenomi or the breach of representations, warranties and covenants made hereunder by Metagenomi; except, in each case, to the extent such Losses result from (i) matters subject to clause (a) or (b) of Section 10.1.2 (By Moderna) or (ii) a Moderna Indemnitee's negligence.

10.1.2 **By Moderna**. Subject to Section 10.1.3 (Procedure), Moderna shall defend, indemnify and hold harmless Metagenomi, its Affiliates, and their respective directors, officers, employees and agents (each, an "**Metagenomi Indemnitee**") from and against any and all Losses to which any Metagenomi Indemnitee may become subject as a result of any Claim to the extent such Losses arise out of: (a) the gross negligence or willful misconduct of Moderna or its Affiliates in connection with its activities under this Agreement; or (b) the breach of this Agreement by Moderna or the breach of representations, warranties and covenants made hereunder by Moderna; except, in each case, to the extent such Losses result from (i) matters subject to clause (a) or (b) of Section 10.1.1 (By Metagenomi) or (ii) an Metagenomi Indemnitee's negligence.

10.1.3 **Procedure**. A Party that intends to claim indemnification under this Article 10 (Indemnification) (the "**Indemnitee**") shall promptly notify the Indemnitor (the "**Indemnitor**") in writing of any Claim in respect of which the Indemnitee intends to claim such indemnification. The failure to deliver written notice to the Indemnitor within a reasonable time after the commencement of any action with respect to a Claim shall only relieve the Indemnitor of its indemnification obligations under this Article 10 (Indemnification) if and to the extent the Indemnitor is actually and materially prejudiced thereby. The Indemnitor has sole control of the defense or settlement thereof. The Indemnitee shall cooperate fully with the Indemnitor and its legal representatives in the investigation of any action with respect to a Claim covered by this indemnification. The Indemnitee may participate at its expense in the Indemnitor's defense of and settlement negotiations for any Claim with counsel of the Indemnitee's own selection. The Indemnitor shall not settle any Claim without the prior written consent of the Indemnitee, not to be unreasonably withheld, conditioned or delayed. So long as the Indemnitor is actively defending the Claim in good faith, the Indemnitee shall not settle or compromise any such Claim without the prior written consent of the Indemnitor. If the Indemnitor does not assume and conduct the defense of the Claim as provided above: (a) the Indemnitee may defend against, consent to the entry of any judgment, or enter into any settlement with respect to such Claim in any manner the Indemnitee may deem reasonably appropriate (and the Indemnitee need not consult with, or obtain any consent from, the Indemnitor in connection therewith); and (b) the Indemnitor shall remain responsible to indemnify the Indemnitee as provided in this Article 10 (Indemnification).

10.2 **Losses in the Territory**. All Losses arising from any Third Party Claim relating to the Exploitation of a DT Co-Co Product in the Territory, including fees and disbursements to counsel, incurred by either Party in connection with the defense of any such Third Party Claim brought in the Territory, shall be shared [***] by the Parties as an Other Operating Expense in accordance with Section 7.4 (Co-Co Products Profit and Loss Share), provided that, such Other Operating Expenses shall not include Losses of a Party or its Affiliate to the extent such Losses are: (a) caused by a breach of this Agreement by such Party or Affiliate; or (b) caused by the negligence or willful misconduct of such Party or its Affiliate, and any such Losses described in clause (a) or (b) shall not be applied to the Operating Profit or Loss as Other Operating Expenses.

10.3 **Insurance**. During the Term, each Party shall maintain such types and amounts of liability insurance (including, with respect to Moderna, self-insurance) as is normal and customary in the industry generally for similarly situated parties and adequate to cover its obligations under this Agreement, and each Party shall, upon request, provide the other Party with a certificate of insurance in that regard, along with any amendments and revisions thereto.

Article 11
CONFIDENTIALITY

11.1 **Confidential Information**.

11.1.1 **Confidential Information**. In connection with this Agreement, a Party may disclose to the other Party certain confidential information of such disclosing Party (such confidential information, "**Confidential Information**"). For clarity, all Results in a Program and all records of each Party's activities in a Program constitute Confidential Information, provided, that (a) any confidential information initially disclosed by a Party that is to be solely owned by the other Party in accordance with this Agreement shall be the Confidential Information of such other Party (and the owning Party shall be deemed the disclosing Party, and the initially disclosing Party shall be deemed the receiving Party, with respect thereto and regardless of the Party initially disclosing the same), (b) any confidential information Controlled by Metagenomi or any of its Affiliates to the extent solely relating to (i) a DT Moderna Target in the DT Field, (ii) a RT Target that is selected in accordance with Section 3.9 (RT Option) in the RT Field, or (iii) an RT Candidate, a DT Moderna Candidate or a Licensed Product, or the Exploitation of any of the foregoing (i)-(iii), shall be deemed Confidential Information of Moderna (and Moderna the disclosing Party, and Metagenomi the receiving Party, with respect thereto and regardless of the Party initially disclosing the same), and (c) any confidential information Controlled by either Party or any of its Affiliates to the extent solely relating to the DT Co-Co Target in the DT Field, a DT Co-Co Candidate or a DT Co-Co Product or the Exploitation thereof shall be deemed Confidential Information of both Parties. Without limiting the foregoing, the terms of this Agreement are the Confidential Information of both Parties and shall be treated confidentially by each of the Parties, subject to the exceptions set forth in Section 11.1.6 (Disclosure of Agreement). Information exchanged by the Parties pursuant to the Mutual Confidentiality Agreement shall be governed by such Mutual Confidentiality Agreement; provided that any such information that is subsequently exchanged by the Parties under this Agreement shall, from that time, be governed by the terms of this Agreement. Notwithstanding anything herein to the contrary, Metagenomi shall not disclose any Results or Data Package to the extent related to the mRNA-LNP Technology without Moderna's prior written consent.

11.1.2 **Restrictions**. A Party (the "**Receiving Party**") that receives Confidential Information from the other Party (the "**Disclosing Party**") shall keep all the Disclosing Party's Confidential Information in confidence with the same degree of care with which the Receiving Party holds its own confidential information (but in no event less than a commercially reasonable degree of care). A Receiving Party shall not use the Disclosing Party's Confidential Information except in connection with the performance of its obligations and exercise of its rights under this Agreement.

11.1.3 **Exceptions**. The obligations of confidentiality and restriction on use of Confidential Information under Section 11.1.2 (Restrictions) do not apply to any information that the Receiving Party can prove by competent written evidence: (a) is now, or hereafter becomes, through no act or failure to act on the part of the Receiving Party, generally known or available to the public; (b) is known by the Receiving Party at the time of receiving such information, other than by previous disclosure of the Disclosing Party, or its Affiliates, employees, agents, consultants, or contractors; (c) is hereafter furnished to the Receiving Party without restriction by a Third Party who has no obligation of confidentiality or limitations on use with respect thereto, as a matter of right; or (d) is independently discovered or developed by the Receiving Party without the use of Confidential Information belonging to the Disclosing Party. Specific information shall not be deemed to be within any of the foregoing exclusions merely because it is embraced by more general information falling within those exclusions.

11.1.4 **Permitted Disclosures**. The Receiving Party may disclose Confidential Information belonging to the Disclosing Party as expressly permitted under this Agreement or if and to the extent such disclosure is reasonably necessary in the following instances:

(a) Prosecution and Maintenance of Patents as permitted under this Agreement;

(b) Regulatory Filings for Product that such Party has a license or right to develop hereunder in a given country or jurisdiction;

(c) prosecuting or defending litigation as permitted under this Agreement;

(d) made in response to a valid order of a court or other Governmental Authority or to comply with Applicable Laws (including securities laws); provided that the Receiving Party shall, to the extent permitted by Applicable Laws, first have given notice to the Disclosing Party and given the Disclosing Party a reasonable opportunity, at the Disclosing Party's expense, to quash such order or to obtain a protective order or seek confidential treatment; and provided further that the Confidential Information disclosed in response to such court or governmental order shall be limited to that information which is legally required to be disclosed in response to such court or governmental order or to comply with Applicable Laws;

(e) in response to a valid request by a U.S., state, foreign, provincial, or local tax authority, in which case either Party may disclose, a copy of this Agreement (including any Schedules, ancillary agreements and amendments hereto);

(f) disclosure to its and its Affiliates' employees, consultants, contractors and agents, and to Sublicensees, in each case on a need-to-know basis in connection with the Research, Development, making, having made, use, keeping, import, export, offering for sale, selling, or otherwise Exploiting of Products in the RT Field or DT Field (as applicable) in the Territory, and Commercialization of the Products in accordance with the terms of this Agreement, in each case under written obligations of confidentiality and non-use at least as stringent as those herein;

(g) to the extent otherwise necessary or reasonably useful for a Receiving Party to exploit the licenses granted to it under this Agreement; and

(h) disclosure to *bona fide* potential and actual investors, acquirers, and other financial partners solely for the purpose of evaluating or carrying out an actual or potential investment or acquisition, in each case under written obligations of confidentiality and non-use at least as stringent as those herein; provided that with respect to disclosure to actual or *bona fide* potential investors, such disclosure is under a written obligation of confidentiality that is consistent with market terms, including a shorter period of time during which such information must be held confidential.

Notwithstanding the foregoing, if a Party is required to make a disclosure of the other Party's Confidential Information pursuant to Section 11.1.4(c) or (d) (Permitted Disclosures), it shall, except where impracticable, give reasonable advance notice to the other Party of such disclosure and use efforts to secure confidential treatment of such Confidential Information at least as diligent as such Party would use to protect its own Confidential Information, but in no event less than reasonable efforts. Any information disclosed pursuant to Section 11.1.4(c) or (d) (Permitted Disclosures) remains Confidential Information and subject to the restrictions set forth in this Agreement, including the foregoing provisions of this Article 11 (Confidentiality).

11.1.5 **Public Domain Information and Residual Knowledge**. Nothing in this Agreement shall prevent a Party from using any Know-How that is in the public domain. Except to the extent a Party has granted exclusive or co-exclusive rights to the other Party under this Agreement (including as and to the extent such rights survive this Agreement), each Party grants to the other Party a non-exclusive license to use, outside the scope of this Agreement and for any purpose, any Know-How or Confidential Information shared in the performance of this Agreement by such Party solely to the extent such Know-How or Confidential Information has been retained (without intentional memorization) in intangible form in the minds of such Party's employees (or its Affiliates' employees) who have had access to such Know-How or Confidential Information pursuant to the terms of this Agreement and without reference to any tangible copies of such Know-How or Confidential Information; provided that this provision shall not be deemed in any event to provide any right to infringe the Patent rights of the other Party or of Third Parties that have licensed or provided materials to the other Party; provided, further, that a Party's use of such Know-How or Confidential Information is on an "as is, where is" basis, with all faults and all representations and warranties disclaimed and at such Party's sole risk.

11.1.6 **Disclosure of Agreement**. Notwithstanding the foregoing, either Party or its Affiliates may disclose the relevant terms of this Agreement: (a) to the extent required or advisable to comply with the rules and regulations promulgated by the U.S. Securities and Exchange Commission or any equivalent governmental agency in any country in the Territory, provided that such Party shall submit a confidential treatment request in connection with such disclosure and shall submit with such confidential treatment request only such redacted form of this Agreement as may be mutually agreed in writing by the Parties; (b) upon request from a Governmental Authority (such as a tax authority), provided the disclosing Party uses reasonable efforts to ensure the Governmental Authority maintains such terms as confidential; (c) to applicable licensors, solely to the extent necessary to comply with the terms of any Third Party license agreement, the rights under which are sublicensed to the other Party under this Agreement; and (d) to the extent necessary to perform obligations or exercise rights under this Agreement, to any Sublicensee, collaborator or potential Sublicensee or potential collaborator of such Party, provided that any Sublicensee, collaborator or potential Sublicensee or collaborator agree in writing to be bound by obligations of confidentiality and non-use no less protective of the Disclosing Party than those set forth in this Agreement.

11.1.7 **Survival**. Each Party's obligations under this Section 11.1 (Confidential Information) apply during the Term and continue for three (3) years thereafter with respect to Confidential Information.

11.2 **Publicity**. On November 2, 2021, the Parties shall issue a joint press release in the form attached hereto as **Schedule N** (Joint Press Release). Except as permitted under Section 11.1.4 (Permitted Disclosures) or Section 11.1.6 (Disclosure of Agreement), neither Party shall issue any press release or public statement disclosing information relating to this Agreement or the transactions contemplated hereby or the terms hereof without the prior written consent of the other Party; provided however, that neither Party shall be prevented from complying with any duty of disclosure it may have pursuant to Applicable Laws or pursuant to the rules of any recognized stock exchange or quotation system subject to the restrictions set forth in Sections 11.1.4 (Permitted Disclosures) and 11.1.5 (Public Domain Information and Residual Knowledge).

11.3 **Publication**. The following restrictions shall apply with respect to disclosure by any Party of Confidential Information in any publication or presentation with respect to the Programs, the Collaboration Targets, the Products or their testing:

11.3.1 both Parties acknowledge that it is their policy for the studies and results thereof to be registered and published in accordance with their internal guidelines; and

11.3.2 a Party ("**Publishing Party**") shall provide the other Party with a copy of any proposed material publication or presentation at least [***] (or [***] in the case of a manuscript) prior to submission for publication so as to provide such other Party with an opportunity to recommend any changes it reasonably believes are necessary to continue to maintain the Confidential Information disclosed by the other Party to the Publishing Party in accordance with the requirements of this Agreement. The incorporation of such recommended changes shall not be unreasonably refused; and if such other Party notifies ("**Publishing Notice**") the Publishing Party in writing, within such [***] period (or [***] period in the case of a manuscript) after receipt of the copy of the proposed publication, presentation, or manuscript, that such publication or presentation in its reasonable judgment (i) contains an invention, solely or jointly conceived or reduced to practice by the other Party, for which the other Party reasonably desires to obtain patent protection or (ii) could be expected to have a material adverse effect on the commercial value of any Confidential Information disclosed by the other Party to the Publishing Party, the Publishing Party shall prevent such publication or delay such publication for a mutually agreeable period of time. In the case of inventions, a delay shall be for a period reasonably sufficient to permit the timely preparation and filing of a patent application(s) on such invention, and in no event less than [***] from the date of the Publishing Notice.

Article 12
TERM & TERMINATION

12.1 **Term**. This Agreement commences on the Effective Date and, unless terminated earlier as provided in this Article 12 (Term and Termination), shall continue on a Program-by- Program basis as follows: (a) with respect to the RT Technology Research Program, until the end of the RT Research Term; (b) with respect to an RT Preclinical Research Program, (i) in the event no RT Option has been exercised within the RT Option Period for such RT Preclinical Research Program, until the expiration of the RT Option Period, or (ii) in the event an RT Option has been exercised within the applicable RT Option Period for such RT Preclinical Research Program, on a Licensed Product-by-Licensed Product and country-by-country basis, until the expiration of the applicable RT Royalty Term; (c) with respect to the DT Target Evaluation Program, until the end of the DT Moderna Research Term; (d) with respect to a DT Moderna Research Program, (i) in the event no DT Option has been exercised within the DT Option Period for such DT Moderna Research Program, until the expiration of the DT Option Period, or (ii) in the event a DT Option has been exercised within the applicable DT Option Period for such DT Moderna Research

Program, on a Licensed Product-by-Licensed Product and country-by-country basis, until the expiration of the applicable DT Moderna Royalty Term; and (e) with respect to the DT Co-Co Program, on a DT Co-Co Product-by-DT Co-Co Product and country-by-country basis, (i) in the event neither Party Opts-Out within the time allowed under Section 6.8.1 (Opt-Out Right), until neither Party (or its Affiliates, Sublicensees or assignees) continue to Commercialize such DT Co-Co Product in such country; or (ii) in the event either Party Opts-Out within the time allowed under Section 6.8.1 (Opt-Out Right), until the expiration of the applicable Opt-Out Royalty Term, provided that, in each case of (i) and (ii), in the event there is no DC Nomination in the DT Co-Co Program by the end of the Initial DT Co-Co Research Term, this Agreement will expire with respect to such DT Co-Co Program at the end of the Initial DT Co-Co Research Term, subject to the last paragraph of Section 6.3.1 (DT Co-Co Research Plan) (the "**Term**"). Upon the expiration of the Term with respect to (A) a Licensed Product in an RT Preclinical Research Program in a country in accordance with clause (b)(ii) of the immediately preceding sentence, the licenses granted to Moderna under Section 5.13 (License to Moderna Upon Exercise of the RT Option) with respect to such Licensed Product and such country shall survive and become perpetual, fully- paid and royalty-free; (B) a Licensed Product in a DT Moderna Research Program in a country in accordance with clause (c)(ii) of the immediately preceding sentence, the licenses granted to Moderna under Section 5.15 (License to Moderna Upon Exercise of the DT Option) with respect to such Licensed Product in such country shall survive and become perpetual, fully-paid and royalty-free; and (C) a DT Co-Co Product in the DT Co-Co Program in a country in accordance with clause (e)(ii) of the immediately preceding sentence, the licenses granted to the Primary Party under Section 5.5 (DT Co-Co Program License) with respect to such DT Co-Co Product in such country shall survive and become perpetual, fully-paid and royalty-free.

12.2 **Termination for Material Breach or Insolvency or Patent Challenge**.

12.2.1 **Material Breach**. On a Program-by-Program basis, subject to Section 12.2.2 (Disputes Regarding Material Breach), each Party (the "**Non-Breaching Party**") shall have the right to terminate this Agreement with respect to such Program upon written notice to the other Party (the "**Breaching Party**") if the Breaching Party materially breaches its obligations under this Agreement with respect to [***], after receiving written notice from the Non-Breaching Party identifying such material breach by the Breaching Party in reasonable detail, fails to cure such material breach within [***] from the date of such notice (or, if such breach cannot be cured within [***] from the date of such notice, if the Breaching Party has not commenced or is not diligently continuing in good faith efforts to cure such breach; provided that, in any event, such breach must be cured within [***] from the date of such notice) (such [***] period, the "**Cure Period**"). For the avoidance of doubt, (i) each Party has all rights and may seek all available remedies under Applicable Laws in the event of a breach of this Agreement by the other Party, regardless of whether such breach constitutes a material breach that could give rise to termination of this Agreement, and (ii) if a material breach giving rise to termination under this Section 12.2.1 (Material Breach) is specific to any one (1) or more Programs, then the Non-Breaching Party's right to terminate under this Section 12.2.1 (Material Breach) shall be limited to such affected Programs.

12.2.2 **Disputes Regarding Material Breach**. If the Parties reasonably and in good faith disagree as to whether there has been a material breach, then the Breaching Party that disputes whether there has been a material breach may contest the allegation in accordance with Article 13 (Governing Law; Dispute Resolution), and the applicable Cure Period shall be tolled upon the initiation of such dispute resolution procedures. If, as a result of such dispute resolution process, it is finally determined pursuant to Article 13 (Governing Law; Dispute Resolution) that the Breaching Party committed a material breach of this Agreement, then the applicable Cure Period shall resume and unless such alleged breach was cured during the pendency of such Cure Period (once resumed), this Agreement shall terminate effective as of the expiration of such Cure Period. This Agreement shall remain in full force and effect during the pendency of any such dispute resolution proceeding and all Cure Periods. Any such dispute resolution proceeding shall not suspend any obligations of either Party hereunder and each Party shall use reasonable efforts to mitigate any damages. Any payments that are made by one Party to the other Party pursuant to this Agreement pending resolution of the dispute shall be promptly refunded if it is determined pursuant to Article 13 (Governing Law; Dispute Resolution) that such payments are to be refunded by one Party to the other Party. If, as a result of such dispute resolution proceeding, it is determined that the Breaching Party did not commit such material breach (or such material breach was cured in accordance with Sections 12.2.1 (Material Breach) or 12.2.2 (Disputes Regarding Material Breach)), then no termination of this Agreement shall be effective, and this Agreement shall continue in full force and effect.

12.2.3 **Termination for Insolvency**. To the extent permitted by Applicable Laws, either Party may terminate this Agreement in its entirety upon providing written notice to the other Party on or after the time that such other Party files or institutes a bankruptcy, reorganization, liquidation, or receivership proceeding or upon the appointment of a receiver or trustee over all or substantially all property of the other Party, or upon an assignment of a substantial portion of the assets of the other Party for the benefit of creditors; provided that in the case of any involuntary bankruptcy proceeding, such right to terminate shall only become effective if the other Party consents to the involuntary bankruptcy or such proceeding is not dismissed within [***] after the filing thereof.

12.2.4 **Termination for Patent Challenge**. Metagenomi shall have the right, upon written notice to Moderna, to terminate this Agreement on a Program-by-Program basis if Moderna directly or indirectly (whether alone, or in concert with or for the benefit of any Third Party) challenges, opposes, seeks to invalidate or render void or unenforceable any Patent included within the Metagenomi Licensed Collaboration Technology in such Program, through a declaratory judgment, post grant review, inter partes review, or any other action or proceeding, except to the extent required by Applicable Law, court order or bona fide judicial process.

12.3 **Moderna Option to Continue in Lieu of Termination**.

12.3.1 **Payment Reductions in Lieu of Termination**. For a given RT Target or DT Moderna Target (and any related Program or Licensed Products), with respect to Metagenomi's material breach of any of its obligations under this Agreement with respect thereto as determined pursuant to Section 12.2.1 (Material Breach) (and after completion of the process set forth in Section 12.2.2 (Disputes Regarding Material Breach) if invoked), Moderna shall have the right, at its option and by written notice to Metagenomi, in lieu of exercising its right to terminate this Agreement with respect to such Collaboration Target under Section 12.2.1 (Material Breach), to instead continue this Agreement with respect to such Collaboration Target (and related Program and Licensed Products) in accordance with its terms, and in which case: (a) at Moderna's

option, the JSC will coordinate wind-down of Metagenomi's activities with respect to such RT Program or DT Program, and (b) from and after such time as Moderna delivers such written notice to Metagenomi, any and all amounts thereafter payable by Moderna for a Licensed Product applicable to such Collaboration Target hereunder (including Milestone Payments and royalties) shall be reduced by fifty percent (50%) (and for clarity, any floors on any such Milestone Payments and royalties hereunder will also be lowered by fifty percent (50%)). Notwithstanding the foregoing, Moderna's exercise of its rights under this Section 12.3.1 (Payment Reductions in Lieu of Termination) with respect to a Collaboration Target shall not affect the Parties' respective rights and obligations (including, without limitation, Milestone Payments and royalties) with respect to any other Collaboration Targets (or any related Program or Licensed Products).

12.3.2 **Profit-share Reduction in Lieu of Termination**. For a given DT Co-Co Target (and related Program and DT Co-Co Products), with respect to Metagenomi's material breach of any of its obligations under this Agreement with respect thereto as determined pursuant to Section 12.2.1 (Material Breach) (and after completion of the process set forth in Section 12.2.2 (Disputes Regarding Material Breach) if invoked), Moderna shall have the right, at its option and by written notice to Metagenomi, in lieu of exercising its right to terminate this Agreement with respect to such DT Co-Co Target under Section 12.2.1 (Material Breach), to instead continue this Agreement with respect to such DT Co-Co Target (and related Program and DT Co-Co Products) in accordance with its terms, and in which case, Moderna may elect, on a one time basis, by providing a written notice to Metagenomi, to seek to adjust the Profit and Loss Share for one or more DT Co-Co Products for such DT Co-Co Target in the Territory and, to fairly compensate Moderna for the damages arising from such material breach. Moderna will have the right to propose the adjustment, and the Parties will discuss in good faith, and if the Parties cannot mutually agree, then such adjustment shall be resolved pursuant to Section 13.3 (Arbitration). It is understood that such adjustment would provide Moderna with additional share of the net profits (but not more than 75% of the total net profits) for the DT Co-Co Products, to Moderna, for a period of time as may be appropriate and agreed by the Parties (or pursuant to Section 13.3 (Arbitration), as applicable). The profit adjustment may be, with respect to the DT Co-Co Target, on a country-by-country basis, or for the entire Territory, and the adjustment shall not apply to the sharing of any Development Costs. If Moderna so elects, then this Agreement shall continue to be in force with respect to such DT Co-Co Target (and related Program and DT Co-Co Products), provided that the foregoing shall not limit any other rights that Moderna may have under this Agreement with respect to Metagenomi's material breach, including to seek specific performances pursuant to Section 13.5 (Equitable Relief; Remedy for Breach of Exclusivity).

12.3.3 **Know-How Transfer**. Within thirty (30) days following Moderna's election not to terminate this Agreement under this Section 12.3 (Moderna Option to Continue in Lieu of Termination), Metagenomi shall disclose or deliver to Moderna, to the extent not previously provided, copies of all data and information in Metagenomi's (or its Affiliates') possession relating to the applicable Program which is reasonably necessary for Moderna's Research, Development or Commercialization of the applicable Products (including for regulatory purposes and to otherwise undertake Program activities that would otherwise have been performed by Metagenomi and regardless of the stage of any such activities). Upon Moderna's reasonable request, Metagenomi shall: (a) provide reasonable technical assistance to Moderna during such disclosure or delivery set forth in the preceding sentence; and (b) make its employees and nonemployee consultants reasonably available at their respective places of employment to consult with

Moderna on issues arising in the course of Moderna's Research, Development or Commercialization and in connection with any request related to a Product from any Regulatory Authority, including regulatory, scientific, technical and clinical testing issues. The Know-How transfer to be undertaken under this Section 12.3 (Moderna Option to Continue in Lieu of Termination) shall be overseen by a Working Group established for such purposes, which Working Group may put in place a technology transfer plan expressly identifying Know-How Controlled by Metagenomi or its Affiliates to be transferred and the timing for such transfer.

12.4 **Termination for Convenience by Moderna**. Moderna may, at any time in its sole discretion and without cause, terminate this Agreement with respect to an RT Program or a DT Program upon at least: (a) sixty (60) days' prior written notice to Metagenomi if a First Commercial Sale has not occurred for the Products in such Program; or (b) one hundred eighty (180) days' prior written notice to Metagenomi if a First Commercial Sale of a Product in such Program has occurred.

12.5 **Termination for Convenience by Primary Party**. Subject to the remainder of this Section 12.5 (Termination for Convenience by Primary Party), the Primary Party may, at any time in its sole discretion and without cause, terminate this Agreement with respect to the DT Co-Co Program upon at least [***] prior written notice to the Opt-Out Party. Upon receiving the written notice from the Primary Party, and within such [***] period, the Opt-Out Party may elect to opt into the DT Co-Co Program to continue the Development and Commercialization activities in the DT Co-Co Program in the Territory by providing written notice to the Primary Party of such election ("**Opt-In**," and such right to Opt-In, the "**Opt-In Right**"). The exercise by the Opt-Out Party of its Opt-In Right in accordance with the foregoing sentence shall become effective [***] after the delivery of the written notice to the Primary Party (the "**Opt-In Date**").

12.5.1 If the Opt-Out Party exercises its right to Opt-In with respect to the DT Co-Co Program pursuant to this Section 12.5 (Termination for Convenience by Primary Party), then (i) the DT Co-Co Program shall not terminate, (ii) from and after the Opt-In Date, all rights to lead or manage any of the activities conducted by the Primary Party as of the proposed date of termination set forth in its written notice to the Opt-Out Party under this Section 12.5 (Termination for Convenience by Primary Party) shall be assumed by, and assigned to, the Opt-Out Party, and (iii) the Opt-Out Party shall be referred to as the "**Opt-In Party**" hereafter in this Section 12.5 (Termination for Convenience by Primary Party).

12.5.2 Subject to Section 12.5.3 (Termination for Convenience by Primary Party), after the Opt-In Party exercises the Opt-In Right with respect to the DT Co-Co Program pursuant to this Section 12.5 (Termination for Convenience by Primary Party), (i) the license of the Licensed DT Co-Co Technology with respect to the DT Co-Co Program from the Opt-In Party to the Primary Party under Section 6.8.2 (Effects of Opt-Out) shall immediately terminate as of the Opt-In Date, and the license of the Licensed DT Co-Co Technology with respect to the DT Co-Co Program from the Primary Party to the Opt-In Party under Section 5.5 (DT Co-Co Program License) shall immediately become effective again and immediately become exclusive (subject to applicable Antitrust Filings and related government approvals or clearances, provided that the Parties shall reasonably cooperate with each other in connection with the Antitrust Filings); (ii) the Opt-In Party shall have sole authority and be solely responsible for all Development and Commercialization activities and related costs in the DT Co-Co Program, provided that in any event Moderna would

retain the decision-making power with respect to issues related to CMC Matters, Manufacturing, and the application of Moderna's technology to any of such activities; (iii) the Parties shall agree upon a written transition plan (an "**Opt-In Transition Plan**") setting forth all of the wind-down and other activities necessary or reasonably useful to transition all Development, Commercialization, and Medical Affairs activities, and any accompanying technology transfer activities (including the assignment of any applicable Data Packages), for clarity excluding any transfer of any consulting services with respect to the DT Co-Co Program (collectively, the "**Opt-In Transition Activities**"); (iv) each Party shall carry out the Opt-In Transition Activities assigned to it in the Opt-In Transition Plan and be responsible for its own costs with respect to such Opt-In Transition Activities; (v) the Primary Party shall assign and transfer (where applicable) to the Opt-In Party all Regulatory Documentations specific to all DT Co-Co Products in the DT Co-Co Program, and shall grant the Opt-In Party a right of reference to all other Regulatory Documentations with respect to such DT Co-Co Products necessary for the further Development and Commercialization thereof, in each case subject to Moderna retaining CMC-related components of such Regulatory Documentations and all other Moderna's Confidential Information related to CMC Matters, as set forth in the applicable Opt-In Transition Plan; and (vi) each Party shall submit to the applicable Regulatory Authority any filings, letters, and other Regulatory Filings and documentation necessary to effect such assignment and transfer as soon as practicable.

12.5.3 Notwithstanding the foregoing provisions of this Section 12.5 (Termination for Convenience by Primary Party), after Metagenomi exercises its Opt-In Right with respect to the DT Co-Co Program pursuant to this Section 12.5 (Termination for Convenience by Primary Party), (i) the license of the Metagenomi Licensed DT Co-Co Technology with respect to the DT Co-Co Program from Metagenomi to Moderna under Section 6.8.2(b) (Effects of Opt-Out) shall become co-exclusive but Moderna shall only practice its rights under the co-exclusively licensed Metagenomi Licensed DT Co-Co Technology to perform its obligations pursuant to Section 5.23 (Manufacture), and (ii) the license of the Moderna Licensed DT Co-Co Technology with respect to the DT Co-Co Program from Moderna to Metagenomi under Section 5.5 (DT Co-Co Program License) shall become effective again and immediately become non-exclusive after DC Nomination with respect to the DT Co-Co Product nominated in such DC Nomination, provided that (A) Metagenomi may only keep Exploiting Moderna Licensed DT Co-Co Technology being Exploited by Metagenomi as of Metagenomi's prior Opt-Out Date, and the Exploitation of any other Moderna Licensed DT Co-Co Technology shall be subject to Moderna's express prior written consent, and (B) Metagenomi may only Exploit mRNA-LNP Technology of Moderna or any of its Affiliates and not of any Third Party.

12.5.4 Notwithstanding anything herein to the contrary, in the event Moderna exercises its Opt-In Right pursuant to this Section 12.5 (Termination for Convenience by Primary Party), the JSC and its subcommittees, except to the extent required by the Opt-In Transition Plan to facilitate the Opt-In Transition Activities, shall immediately disband, for clarity, solely with respect to such DT Co-Co Program.

12.5.5 Notwithstanding anything herein to the contrary, in the event Metagenomi exercises its Opt-In Right pursuant to this Section 12.5 (Termination for Convenience by Primary Party), then Section 6.5.1(c) (CMC Matters) and Section 5.23 (Manufacture) shall remain in force. After Metagenomi has exercised such Opt-In Right, the Parties will use Commercially Reasonable Efforts to negotiate and enter a supply agreement and a quality agreement covering the supply of Candidates and Products for Research, Development, and Commercialization, as applicable, for such DT Co-Co Program.

12.5.6 Notwithstanding anything herein to the contrary, in the event Metagenomi exercises its Opt-In Right pursuant to this Section 12.5 (Termination for Convenience by Primary Party), if not previously prepared and filed, Moderna will, at Metagenomi's written request, prepare and file with Regulatory Authorities in jurisdictions where Metagenomi is seeking Regulatory Approval of a DT Co-Co Product, a DMF containing required CMC information for such DT Co-Co Product's Regulatory Approval. Metagenomi and its Affiliates may refer to such DMF in any Regulatory Filing made in connection with obtaining or maintaining a Regulatory Approval for such DT Co-Co Product. Moderna will, on written request by Metagenomi or its Affiliate, provide to such requesting party and to any specified Regulatory Authority a letter, in the form reasonably required by such requesting party, acknowledging that the requesting party has a right of reference to any such DMF. Notwithstanding that the foregoing provisions of this Section 12.5.6 (Termination for Convenience by Primary Party) provide the mechanism for Regulatory Authorities to have required access to Moderna's CMC information, in the event that the procedures set forth in the foregoing provisions of this Section 12.5.6 (Termination for Convenience by Primary Party) are not available in a particular country or are not sufficient to satisfy a Regulatory Authority's requirements, at Metagenomi's request, the Parties will discuss such requirements and use Commercially Reasonable Efforts to secure agreement from the Regulatory Authority for it to receive required access to all necessary CMC information directly from Moderna in a manner that minimizes the disclosure of such CMC information and protects the confidential and proprietary nature of such CMC information. Notwithstanding the foregoing provisions of this Section 12.5.6 (Termination for Convenience by Primary Party), Moderna shall have no obligation to comply with Metagenomi's or its Affiliates' written request that Moderna prepare and file a DMF with, or otherwise provide CMC information to, any Regulatory Authority in any jurisdiction with respect to which Moderna has a material concern regarding the protection of its intellectual property rights in connection with any Regulatory Filing or otherwise seeking or maintaining any Regulatory Approval in such jurisdiction, and upon written request by Moderna, Metagenomi shall, and shall cause its Affiliates and its and their Sublicensees to, refrain from preparing or submitting any Regulatory Filing, or otherwise obtaining or maintaining any Regulatory Approval, for any DT Co-Co Product in such jurisdictions.

12.6 **Effects of Termination**.

12.6.1 **Effects of termination generally**. Subject to the remainder of this Section 12.6 (Effects of Termination), upon termination of this Agreement with respect to a Program, with respect to Products within such Program, on a Product-by-Product basis:

(a) **Licenses**. All licenses granted hereunder with respect to such Product will terminate; provided *that* such licenses will continue as necessary for the Parties to complete the orderly wind-down of their activities under this Agreement in accordance with Applicable Law and as otherwise required in accordance with Section 12.6.1(b) (Wind Down). With the exception of such wind-down activities, each Party shall immediately cease and shall cause its Affiliates, Sublicensees and contractors, each as applicable, to immediately cease, all Research, Development, Manufacturing and Commercialization activities with respect to such Product.

(b) **Wind-Down**. Promptly following receipt by the applicable Party of a notice of termination under Section 12.2 (Termination for Material Breach or Insolvency or Patent Challenge) or Section 12.4 (Termination for Convenience by Moderna) or Section 12.5 (Termination for Convenience by Primary Party) if the Opt-Out Party does not exercise the Opt-In Right, the Parties will begin to wind-down their respective activities under this Agreement with respect to such Product. The Parties will establish an appropriate Working Group to coordinate such wind-down.

(c) **Destruction of Confidential Information**. Each Receiving Party shall destroy (at the Disclosing Party's written request) all such Confidential Information of the Receiving Party in its possession as of the effective date of expiration or termination (with the exception of one copy of such Confidential Information, which may be retained by the legal department of the Receiving Party to confirm compliance with the non-use and non-disclosure provisions of this Agreement), and any Confidential Information of the Disclosing Party contained in its laboratory notebooks or databases, provided that each Receiving Party may retain and continue to use such Confidential Information of the Disclosing Party to the extent necessary to exercise any surviving rights, licenses or obligations under this Agreement. Notwithstanding the foregoing, a Receiving Party shall not be required to destroy any computer files created during automatic system back up that are subsequently stored securely by it and not readily accessible to its employees, consultants, or others who received the Disclosing Party's Confidential Information under this Agreement.

12.6.2 **Reversion**. Upon termination of this Agreement with respect to a Program by Metagenomi under Section 12.2.1 (Material Breach), with respect to any Product within such Program impacted by Moderna's material breach (a "**Reversion Product**"), the following will occur:

(a) any licenses and rights granted by Metagenomi to Moderna with respect to the Reversion Product shall revert to Metagenomi, provided that such licenses and rights will continue as necessary as otherwise required under this Section 12.6.2 (Reversion);

(b) in the case the Reversion Product is a DT Co-Co Product, [***];

(c) effective on the effective date of termination for such Reversion Product, Moderna hereby assigns to Metagenomi or its designee all Regulatory Filings (except DMFs), Regulatory Approvals, Pricing and Reimbursement Approvals, copies of material correspondence and conversation logs, pre-clinical and clinical study reports, clinical study protocols, and all data (in the format in which is maintained by Moderna), in each case, that are related to the Reversion Product and Controlled by Moderna or its Affiliates as of the effective date of termination. Moderna shall take all steps necessary to transfer to Metagenomi or its designee ownership of all such assigned Regulatory Filings (except DMFs), Regulatory Approvals and Pricing and Reimbursement Approvals, including submitting to each applicable Regulatory Authority a letter or other necessary documentation (with a copy to Metagenomi) notifying such Regulatory Authority of the transfer of such ownership of each Regulatory Filing, Regulatory

Approval and Pricing and Reimbursement Approval. If it is not feasible under Applicable Laws for Moderna to transfer to Metagenomi any such Regulatory Filings, Regulatory Approvals, and Pricing and Reimbursement Approvals, Moderna shall hold such Regulatory Filings, Regulatory Approvals, and Pricing and Reimbursement Approvals in its name for the benefit of Metagenomi and shall grant, and hereby does grant to Metagenomi an exclusive, royalty-free license and right of reference to use such Regulatory Filings, Regulatory Approvals, and Pricing and Reimbursement Approvals in connection with Exploitation of the Reversion Product and authorize Metagenomi or its designee to conduct regulatory activities with appliable Regulatory Authorities relating to such Regulatory Filings, Regulatory Approvals, and Pricing and Reimbursement Approvals; and

(d) Moderna shall be entitled, during the [***] following the effective date of termination of this Agreement with respect to a Reversion Product, to finish any work-in-progress and to sell any inventory of such Reversion Product and shall pay Metagenomi the amounts applicable to such sales of such Reversion Product in accordance with the terms and conditions of this Agreement. Thereafter, Moderna shall cease selling any such Reversion Product, and Metagenomi shall have the right, in its sole discretion and upon written notification to Moderna, to purchase from Moderna any or all of the inventory of such Reversion Product held by Moderna as of the date of such notice at a price equal to Moderna's Manufacturing Costs for such Reversion Product.

12.6.3 **Conduct During Termination Notice Period**. Following any notice of termination permitted under this Article 12 (Term & Termination) other than any termination pursuant to Section 12.2.1 (Material Breach), during any applicable termination notice period (the applicable "**Termination Notice Period**"), each Party shall continue to perform all of its obligations under this Agreement then in effect in accordance with the terms and conditions of this Agreement. In such circumstances, each Party shall also continue to bear its share of all applicable costs incurred during the Termination Notice Period.

12.6.4 **Transition Agreement**. In connection with the termination of this Agreement, the Parties shall enter into a written agreement (the "**Transition Agreement**") that would include other reasonable terms and conditions, including terms allocating costs and expenses, describing the Parties' indemnification obligations, setting forth the Parties' obligations with respect to unauthorized sales, and setting forth other coordination obligations. If, despite such efforts, the Parties are unable to agree upon such terms and conditions within [***] from the effective date of the termination, either Party may refer the dispute for resolution by arbitration in accordance with Article 13 (Governing Law; Dispute Resolution), and the arbitrator shall have the authority to require the Parties to execute a Transition Agreement in the form approved by the arbitrator.

12.6.5 **Sublicense Survival**. Any permitted sublicense granted by a Party or its Affiliate to a Third Party under the licenses granted to such Party under this Agreement shall survive the termination of this Agreement; provided that, in the case where termination of this Agreement for such Party's uncured material breach pursuant to Section 12.2.1 (Material Breach), such Sublicensee did not cause such uncured material breach. If permitted under such a surviving sublicense, effective upon termination of this Agreement, such sublicense shall become a direct license from Metagenomi to such Sublicensee.

12.7 **Survival**. Expiration or termination of this Agreement shall not relieve the Parties of any obligation or right accruing prior to such expiration or termination. Except as set forth below or elsewhere in this Agreement, the obligations and rights of the Parties under the following provisions of this Agreement shall survive expiration or termination of this Agreement: Article 1 (Definitions) (to the extent the definitions are used in surviving provisions); Sections 3.7.1 (Records), 3.7.3 (Ownership; Confidentiality), 4.8.1 (Records), and 4.8.3 (Ownership; Confidentiality); the second and third last sentences of Section 5.18 (Collaboration Materials Transfer); Sections 5.19 (No Other Rights and Retained Rights), 5.25 (Payments); 7.6 (Accounting; Audit), 7.7 (Disputed Payments), 7.13(Method of Payment; Foreign Exchange), 7.14 (Records and Audits), 7.15 (Default Interest), 7.16 (Taxes), 8.1 (Ownership of Intellectual Property), 8.2.1 (Generally), 8.3.2 (Generally), 8.7 (Common Interest), 8.8 (Trademarks), and 9.6 (Disclaimer); Articles 10 (Indemnification) and 11 (Confidentiality); Sections 12.6 (Effects of Termination), 12.7 (Survival), and 12.8 (Bankruptcy Code); Article 13 (Governing Law; Dispute Resolution); and Sections 14.1 (Entire Agreement; Amendment), 14.2 (Limitation of Liability), 14.3 (Independent Contractors), 14.4 (Notices), 14.5 (Severability), 14.6 (Non-Use of Names), 14.13 (Waivers), 14.15 (Interpretation), 14.18 (No Third Party Beneficiary Rights), 14.19 (Construction), 14.20 (Cumulative Remedies), 14.21 (Extension to Affiliates), and 14.22 (Other Activities).

12.8 **Bankruptcy Code**. If this Agreement is rejected by a Party as a debtor under Section 365 of the U.S. Bankruptcy Code or similar provision in the bankruptcy laws of another jurisdiction (the "**Code**"), then, notwithstanding anything else in this Agreement to the contrary, all licenses and rights to licenses granted under or pursuant to this Agreement by the Party in bankruptcy to the other Party are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the Code (or similar provision in the bankruptcy laws of the jurisdiction), licenses of rights to "intellectual property" as defined under Section 101(35A) of the Code (or similar provision in the bankruptcy laws of another applicable jurisdiction). The Parties agree that a Party that is a licensee of rights under this Agreement shall retain and may fully exercise all of its rights and elections under the Code, and that upon commencement of a bankruptcy proceeding by or against a Party under the Code, the other Party shall be entitled to a complete duplicate of, or complete access to (as such other Party deems appropriate), any such intellectual property and all embodiments of such intellectual property, if not already in such other Party's possession, shall be promptly delivered to such other Party: (a) upon any such commencement of a bankruptcy proceeding upon written request therefor by such other Party, unless the bankrupt Party elects to continue to perform all of its obligations under this Agreement; or (b) if not delivered under the foregoing clause (a), upon the rejection of this Agreement by or on behalf of the bankrupt Party upon written request therefor by the other Party. The foregoing provisions of this Section 12.8 (Bankruptcy Code) are without prejudice to any rights a Party may have arising under the Code.

Article 13
GOVERNING LAW; DISPUTE RESOLUTION

13.1 **Governing Laws**. This Agreement is governed by and shall be construed in accordance with the laws of the State of New York, without reference to its conflict of laws principles. The United Nations Convention of International Contracts on the Sale of Goods (the Vienna Convention) does not apply to this Agreement.

13.2 **Disputes**. The Parties recognize that controversies or claims arising out of, relating to, or in connection with this Agreement may arise from time to time. It is the objective of the Parties to establish procedures to facilitate the resolution of disputes in an expedient manner by mutual cooperation and without resort to litigation. To accomplish this objective, the Parties shall follow the procedures set forth in this Article 13 (Governing Law; Dispute Resolution) to resolve any dispute. If any dispute, claim or controversy of any nature arising out of or relating to this Agreement, including any action or claim based on tort, contract or statute, or concerning the interpretation, effect, termination, validity, performance or breach of this Agreement (each, a "**Dispute**"), arises between the Parties, either Party may refer the Dispute to Executive Officers of each Party for resolution within [***] of a written request by either Party to the other Party. Each Party, within [***] after a Party has received such written request from the other Party to so refer such Dispute, shall notify the other Party in writing of the Executive Officer to whom such Dispute is referred. If, after an additional [***] after the notice of Dispute, such Executive Officers have not succeeded in negotiating a resolution of the Dispute, and a Party wishes to pursue the matter, each such Dispute, controversy or claim that is not an "Excluded Claim" (defined in Section 13.6 (Excluded Claims)) shall be submitted for binding arbitration administered by the International Chamber of Commerce ("**ICC**") pursuant to its Arbitration Rules in effect at the time such Dispute arises (the "**ICC Arbitration Rules**"). The option to arbitrate under this Article 13 (Governing Law; Dispute Resolution) shall extend to any claims by or against the Parties and their respective Affiliates and any agents, principals, officers, directors, or employees of either of the Parties or their respective Affiliates.

13.3 **Arbitration**. Any arbitration that the Parties decide to pursue shall be conducted by a single neutral arbitrator experienced in the business of pharmaceuticals. If the issues in dispute involve scientific, technical or commercial matters, the arbitrator chosen hereunder may engage experts that have educational training or industry experience sufficient to demonstrate a reasonable level of relevant scientific, medical and industry knowledge, as necessary to help resolve the dispute. The Parties shall select the arbitrator promptly following the initiation of the arbitration. If the Parties are unable or fail to agree upon the arbitrator within [***] following the initiation of arbitration, the arbitrator shall be appointed by ICC. The arbitration shall be conducted in New York, New York, and all proceedings and communications shall be in English. Except to the extent necessary to enforce a legal right or as may be required by law, neither a Party nor an arbitrator may disclose the existence, content, or results of an arbitration without the prior written consent of both Parties. Each Party shall bear its own costs and expenses and attorneys' fees and an equal share of the arbitrator's fees and any administrative fees of arbitration. Any arbitration findings or rulings made under this Section 13.3 (Arbitration) shall be final and binding on the Parties.

13.4 **Baseball Arbitration**. Any Disputes over any amounts invoiced under this Agreement, Disputes over matters set forth in Sections 2.10.2 (Decision-making for DT Co-Co Plans), 5.10.3(b) (Payments under Co-Co Moderna In-License Agreements), 5.10.4(b) (Payments under Co-Co Metagenomi In-License Agreements) and 12.6.2(b) (Reversion), shall be submitted to and finally resolved by the following provisions in this Section 13.4 (Baseball Arbitration). The Parties shall promptly designate in writing a single mutually acceptable arbitrator experienced in the licensing, development, and commercialization of pharmaceutical products, who is independent of each Party (i.e., not a current or former employee, consultant, officer, or director or current stockholder of either Party or their respective Affiliates and who does not otherwise have any current or previous business relationship with either Party or their respective Affiliates). If the Parties cannot agree on an arbitrator within [***] after referral of such matter, the arbitrator shall be selected by the President of Greater Boston Chamber of Commerce. The arbitration shall

be conducted in accordance with the ICC Arbitration Rules to the extent consistent with this Section 13.4 (Baseball Arbitration). Within [***] of the arbitrator's appointment, each Party shall prepare and deliver to both the arbitrator and the other Party its last, best offer for the applicable unresolved terms and a memorandum in support thereof. The Parties shall also provide the arbitrator with a copy of the relevant provisions of this Agreement. Each Party may submit to the arbitrator (with a copy to the other Party) a rebuttal to the other Party's support memorandum and shall at such time have the opportunity to amend its last such offer based on any new information contained in the other Party's support memorandum. Within [***] after the arbitrator's appointment, the arbitrator shall select from the two (2) proposals provided by the Parties the proposal such arbitrator believes is the most consistent with the intent of the Parties when this Agreement was entered into provided the arbitrator may not alter the terms of this Agreement. The decision of the arbitrator shall be final and binding on the Parties. The foregoing "baseball-style" arbitration shall be the exclusive remedy of either Party if the Parties cannot agree on any Disputes over any amounts invoiced under this Agreement, or Disputes over matters set forth in Sections 2.10.2 (Decision-making for DT Co-Co Plans), 5.10.3(b) (Payments under Co-Co Moderna In-License Agreements), 5.10.4(b) (Payments under Co-Co Metagenomi In-License Agreements) and 12.6.2(b) (Reversion).

13.5 **Equitable Relief; Remedy for Breach of Exclusivity**. Nothing in this Article 13 (Governing Law; Dispute Resolution) shall preclude either Party from seeking equitable relief or interim or provisional relief from a court of competent jurisdiction, including a temporary restraining order, preliminary injunction or other interim equitable relief, concerning a dispute either prior to or during any arbitration if necessary to protect the interests of such Party or to preserve the status quo pending the arbitration proceeding. Therefore, in addition to its rights and remedies otherwise available at law, including the recovery of damages for breach of this Agreement, such Non-Breaching Party shall be entitled to seek (a) equitable relief, specifically including, but not limited to, both interim and permanent restraining orders and injunctions and (b) such other and further equitable relief as the court may deem proper under the circumstances. Any final judgment resolving a Dispute may be enforced by either Party in any court having appropriate jurisdiction. For the avoidance of doubt, nothing in this Section 13.5 (Equitable Relief; Remedy for Breach of Exclusivity) shall otherwise limit a Breaching Party's opportunity to cure a material breach as permitted in accordance with Section 12.2.1 (Material Breach).

13.6 **Excluded Claims**. As used in this Article 13 (Governing Law; Dispute Resolution), the term "**Excluded Claim**" means any dispute, controversy or claim that concerns: (a) the validity, enforceability or infringement of any patent, trademark or copyright; or (b) any antitrust, antimonopoly or competition law or regulation, whether or not statutory. Any Excluded Claim may be submitted by either Party to any court of competent jurisdiction over such Excluded Claim.

Article 14
MISCELLANEOUS

14.1 **Entire Agreement; Amendment**. This Agreement, including the Schedules hereto, sets forth the complete, final and exclusive agreement and all the covenants, promises, agreements, warranties, representations, conditions and understandings between the Parties hereto along with the Convertible Note Instruments, with respect to the subject matter hereof and supersedes, as of the Effective Date, all prior and contemporaneous agreements and

understandings between the Parties with respect to the subject matter hereof, including the Mutual Confidentiality Agreement. The Parties hereby agree to terminate the Mutual Confidentiality Agreement as of the Effective Date, and that all confidential information that was disclosed by the Parties pursuant to the Mutual Confidentiality Agreement shall be deemed Confidential Information disclosed under, and subject to, the terms and conditions of this Agreement. The foregoing may not be interpreted as a waiver of any remedies available to either Party as a result of any breach, prior to the Effective Date, by the other Party of its obligations under the Mutual Confidentiality Agreement. No subsequent alteration, amendment, change or addition to this Agreement shall be binding upon the Parties unless reduced to writing and signed by an authorized officer of each Party.

14.2 **Limitation of Liability**. TO THE EXTENT PERMITTED BY APPLICABLE LAW, NEITHER PARTY MAY RECOVER FROM THE OTHER PARTY ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES IN CONNECTION WITH THIS AGREEMENT, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES; PROVIDED, HOWEVER, THAT THIS SECTION 14.2 (LIMITATION OF LIABILITY) SHALL NOT BE CONSTRUED TO LIMIT EITHER PARTY'S INDEMNIFICATION OBLIGATIONS UNDER ARTICLE 10 (INDEMNIFICATION), METAGENOMI'S LIABILITY IN CONNECTION WITH A BREACH OF ITS EXCLUSIVITY OBLIGATIONS UNDER SECTIONS 5.20 (RT EXCLUSIVITY), 5.21 (DT EXCLUSIVITY) OR 5.22 (DT CO-CO TARGET EXCLUSIVITY), MODERNA'S LIABILITY IN CONNECTION WITH A BREACH OF ITS EXCLUSIVITY OBLIGATIONS UNDER SECTION 5.22 (DT COCO TARGET EXCLUSIVITY), OR EITHER PARTY FROM ITS LIABILITY FOR ANY DAMAGES BASED UPON SUCH PARTY'S BREACH OF ITS OBLIGATIONS UNDER ARTICLE 11 (CONFIDENTIALITY).

14.3 **Independent Contractors**. The relationship between Moderna and Metagenomi created under this Agreement is solely that of independent contractors. This Agreement does not create any agency, distributorship, employee-employer, partnership, joint venture or similar business relationship between the Parties. Neither Party is a legal representative of the other Party, and neither Party can assume or create any obligation, representation, warranty, or guarantee, express or implied, on behalf of the other Party.

14.4 **Notice**. Any notice required or permitted to be given under this Agreement must be in writing, in English. Any and all notices or other communications or deliveries required or permitted to be provided hereunder must be in writing and shall be deemed given and effective if: (a) delivered by hand or by overnight courier with tracking capabilities; (b) mailed postage prepaid by first class, registered, or certified mail; or (c) delivered by facsimile or electronic mail followed by delivery via either of the methods set forth in clauses (a) and (b) of this Section 14.4 (Notice), in each case, addressed as set forth below unless changed by notice so given:

If to Metagenomi: Metagenomi, Inc.
1545 Park Avenue
Emeryville, CA 94608
Attn: Jian Irish
E-mail:

with a copy (which shall not constitute notice) to:

Metagenomi, Inc.
1545 Park Avenue,
Emeryville, CA 94608
Attn: Legal Department
E-mail:

If to Moderna: ModernaTX, Inc.
200 Technology Square
Cambridge, MA 02139
Attn: General Counsel
E-mail:

with a copy (which shall not constitute notice) to:

ModernaTX, Inc.
200 Technology Square
Cambridge, MA 02139
Attn: Shaun Ryan
E-mail:

Each Party shall also provide a copy of any notice (via e-mail if available) to the other Party's Alliance Manager.

14.5 **Severability**. If, for any reason, any part of this Agreement is adjudicated invalid, unenforceable, or illegal by a court of competent jurisdiction, such adjudication shall not, to the extent feasible, affect or impair, in whole or in part, the validity, enforceability, or legality of any remaining portions of this Agreement. All remaining portions shall remain in full force and effect.

14.6 **Non-Use of Names**. Metagenomi shall not use the name, trademark, logo, or physical likeness of Moderna or its respective officers, directors or employees, or any adaptation of any of them, in any advertising, promotional or sales literature, without Moderna's prior written consent. Metagenomi shall require its Affiliates to comply with the foregoing. Moderna shall not use the name, trademark, logo, or physical likeness of Metagenomi or its officers, directors or employees, or any adaptation of any of them, in any advertising, promotional or sales literature, without Metagenomi's prior written consent. Moderna shall require its Affiliates and Sublicensees to comply with the foregoing.

14.7 **Assignment**. Neither Party may assign or transfer this Agreement or any rights or obligations hereunder without the prior written consent of the other, except that a Party may make such an assignment or transfer without the other Party's consent to: (a) its Affiliate, provided that such Party shall remain primarily liable for any acts or omissions of such Affiliate; or (b) to an Acquirer in connection with a Change of Control, subject to Section 14.9 (Metagenomi Change of Control). Any permitted assignee shall, in writing to the non-assigning Party, expressly assume performance of such assigning Party's rights and obligations. Any permitted assignment is binding on the successors of the assigning Party. Any assignment or attempted assignment by either Party in violation of the terms of this Section 14.7 (Assignment) is null, void and of no legal effect.

14.8 **Acquisition of Existing Competing Programs**. If, after the Effective Date, any Third Party becomes an Affiliate of a Party that such Party controls (as such term is defined in the definition of "Affiliate", and for clarity, excluding a New Affiliate) as a result of a merger, acquisition, consolidation, asset sale, or other similar transaction (whether in a single transaction or series of related transactions), and, as of the closing date of such transaction, such Third Party is engaged in (a) the Development or Commercialization of any compound or product; or (b) the licensing, conveyance, sublicensing or other grant of rights in Patents or Know-How with respect to such any compound or product, in each case of (a) and (b) that would, if conducted by such Party, cause such Party to breach its exclusivity obligations set forth in Section 5.20 (RT Exclusivity), Section 5.21 (DT Exclusivity), Section 5.22 (DT Co-Co Target Exclusivity) (any such activities in (a) and (b), a "**Competing Program**"), then continuation of the relevant Competing Program shall not be a breach of this Agreement provided that such Party provides the other Party with written notice of such transaction promptly, but no later than [***] following the earlier of the first public announcement of such transaction or the execution of a definitive agreement relating to such transaction (if such disclosure is not prohibited under Applicable Laws), and such Party does (or causes such Affiliate to), within [***] after the closing of such transaction, with mutual agreement with the other Party, either: (i) complete a Divestiture of such Competing Program; (ii) cease and terminate the Competing Program, subject to any commercially reasonable wind-down provisions, including with respect to Clinical Trials; or (iii) offer to include the Competing Program into this Agreement; provided that the actions in clauses (i) – (iii) will not have to occur if such Third Party has pre-existing license or contractual obligation that would prohibit the Third Party from taking the actions in clauses (i) – (iii).

14.9 **Metagenomi Change of Control**.

14.9.1 **Notification of Change of Control**. If Metagenomi undergoes a Change of Control at any time before expiry of the Research Term, Metagenomi shall provide Moderna with written notice of such Change of Control of Metagenomi promptly, but no later than [***] following the earlier of the first public announcement of such Change of Control or the execution of a definitive agreement relating to such Change of Control (if such disclosure is not prohibited under Applicable Law or by the terms of any written agreement between Metagenomi and any Third Party), which notice shall describe in reasonable detail the nature of the transaction and the identity of the Acquirer (a "**Change of Control Notice**"). If Metagenomi undergoes such a Change of Control, then Section 14.9.2 (Effects of Change of Control) shall apply. For the avoidance of doubt, a Change of Control of Metagenomi shall not in any way limit or alter Moderna's rights in accordance with Section 12.3 (Moderna Option to Continue in Lieu of Termination).

14.9.2 **Effects of Change of Control**. On a Program-by-Program basis, following a Change of Control of Metagenomi at any time before expiry of the Research Term for such Program, Moderna may elect, at its sole discretion, whether the Research Transfer Scenario (in subsection (a) below) or the Research Continuance Scenario (in subsection (b) below) shall apply to such Change of Control.

(a) **Research Transfer Scenario**. The "**Research Transfer Scenario**" means that Metagenomi shall, on a Program-by-Program basis, transfer to Moderna all ongoing Research and Development activities (including the data and results for such Program), if any, being conducted by or on behalf of Metagenomi or any of its Affiliates, or if no Research or Development activities remain ongoing at the time of such Change of Control, the following shall apply:

(i) Metagenomi shall promptly disclose or deliver to Moderna, to the extent not previously provided, copies of all data, results, and information in Metagenomi's (or its Affiliates') possession constituting Know-How included in the Metagenomi Licensed Collaboration Technology, which is reasonably necessary or useful for Moderna's Exploitation of the Candidates and the Products (including for regulatory purposes) in such Program, and upon Moderna's reasonable request and at Moderna's expense, Metagenomi will: (A) provide reasonable technical assistance to Moderna during such disclosure or delivery set forth in the preceding sentence for a period not longer than [***]; and (B) make its employees and non-employee consultants reasonably available at their respective places of employment to consult with Moderna on issues arising in the course of Moderna's Exploitation or in connection with any request related to a Product from any Regulatory Authority, including regulatory, scientific, technical and clinical testing issues, preparation and submission of Regulatory Filings, and assistance in responding to requests from Regulatory Authorities (the "**Know-How Transfer**"). The Know-How Transfer to be undertaken under the foregoing shall be overseen by a Working Group established for such purposes, which Working Group may put in place a transfer plan expressly identifying Know-How owned or Controlled by Metagenomi or its Affiliates to be transferred and the timing for such transfer; and

(ii) the JSC shall be immediately disbanded, and all approval rights of the JSC, or final decision making authority granted to a Party pursuant to this Agreement, shall become approval rights of the corresponding Party (*i.e.*, mutual agreement by the Parties or final decision making authority by a Party).

(b) **Research Continuance Scenario**. The "**Research Continuance Scenario**" means, on a Program-by-Program basis, that Metagenomi shall continue the Research and other activities, if any, being conducted under the applicable Program Plan, and the Program and this Agreement shall continue in the same manner as prior to the Change of Control, and in which case: (i) Moderna will maintain all of its rights under this Agreement; and (ii) Metagenomi shall continue to comply with its diligence obligations hereunder, with the same level of diligence applied to such activities after the consummation of such Change of Control as compared to prior to the consummation of such Change of Control.

14.10 **Acquirer Engaged in Competing Program**. On a Program-by-Program basis, if a Party undergoes a Change of Control at any time before expiry of the Term for such Program and, as of the closing date of such Change of Control transaction or thereafter, the Acquirer (or any of its Affiliates) is engaged in a Competing Program, then such Party shall implement (as of the closing of such transaction or the engagement in the Competing Program, if later than the closing of such transaction) and enforce Firewalls for the duration of the Firewall Period.

14.11 **Firewalled Programs**. Promptly following the first to occur of any of the following events in relation to an Acquirer of a Party during the Term: (a) the effective date of a Change of Control of such Party to an Acquirer with a Competing Program, or (b) DC Nomination (if applicable), in either case (a) or (b) that results in the Acquirer's program with respect to the applicable Collaboration Target becoming a Competing Program, or (c) the initiation of a Competing Program by an Acquirer of such Party (each of (a), (b), and (c), with respect to such Competing Program, the "**Firewall Event**"), such Party shall implement and enforce Firewalls between the applicable Program and the Competing Program for the duration of the applicable Firewall Period.

14.12 **Firewall Audits**. In the event a Party is obligated to implement and enforce Firewalls under this Agreement, the other Party shall have the right, through a designated Third Party auditor reasonably acceptable to such Party, to audit such Party's (and, as applicable, its Affiliates') obligations under this Agreement regarding implementation and enforcement of such Firewalls for purposes of confirming compliance with the Firewalls, identifying any vulnerabilities or breaches and requiring such Party (or its Affiliates) to promptly remediate any non-compliance identified by such audit. In connection with such audit, duly authorized representatives of the other Party's designated auditor may make an on-site visit to such Party (or its Affiliate) for the purpose of conducting such audit. The other Party may conduct such audits from time to time as reasonably necessary to confirm such Party's compliance with such Firewall requirements no more than [***] or more frequently if the other Party reasonably believes at any time that such Party is not in compliance with such Firewall requirements; provided that if the auditor identifies a breach of the Firewall, the other Party will be entitled to up to [***] additional audits within the same Calendar Year to verify that appropriate action has been taken to remedy the breach of the Firewall. Any audits described under this Section 14.12 (Firewall Audits) shall be conducted during such Party's regular business hours, for a duration only as reasonably necessary to confirm such Party's compliance with the applicable Firewall requirements, and shall not unreasonably interfere with or impede such Party's business operations. The other Party shall provide such Party with written notice of such audit at least [***] prior to such requested audit (or such shorter period as may be designated by the other Party if the other Party reasonably believes at any time that such Party is not in compliance with such Firewall requirements). All such audits shall be conducted at the other Party's cost and expense. If the auditor identifies any breach of the Firewall, the other Party or the auditor will notify such Party, and such Party will promptly (and will use reasonable efforts to ensure its Affiliates promptly) take all action necessary to remedy such breach, and will provide the other Party with reasonable assurance that such action has been taken, at such Party's sole expense.

14.13 **Waivers**. The failure of a Party to insist upon strict performance of any provision of this Agreement or to exercise any right arising out of this Agreement shall neither impair that provision or right nor constitute a waiver of that provision or right, in whole or in part, in that instance or in any other instance. Any waiver by a Party of a particular provision or right shall be in writing, shall be as to a particular matter and, if applicable, for a particular period of time and shall be signed by such Party.

14.14 **Force Majeure**. Neither Party shall be responsible to the other for any failure or delay in performing any of its obligations under this Agreement or for other nonperformance hereunder (excluding, in each case, the obligation to make payments when due) if such delay or nonperformance is caused by strike, fire, flood, earthquake, accident, war, act of terrorism, pandemics, act of God or of the government of any country or of any local government, or by any other cause unavoidable or beyond the control of any Party hereto. In such event, such affected Party shall use Commercially Reasonable Efforts to resume performance of its obligations and shall keep the other Party informed of actions related thereto.

14.15 **Interpretation**. The captions and headings to this Agreement are for convenience only, and are to be of no force or effect in construing or interpreting any of the provisions of this Agreement. Unless specified to the contrary, references to Articles, Sections or Schedules mean the particular Articles, Sections or Schedules to this Agreement and references to this Agreement include all Schedules hereto. In the event of any conflict between the main body of this Agreement and any Schedule hereto, the main body of this Agreement shall prevail. Unless context otherwise clearly requires, whenever used in this Agreement: (a) the words "include" or "including" shall be construed as incorporating, also, "but not limited to" or "without limitation"; (b) the word "or" is used in the inclusive sense (i.e., "and/or"); (c) the word "day" or "year" means a calendar day or year unless otherwise specified; (d) the word "notice" means notice in writing (whether or not specifically stated) and shall include notices, consents, approvals and other written communications contemplated under this Agreement; (e) the words "hereof," "herein," "hereby" and derivative or similar words refer to this Agreement as a whole and not merely to the particular provision in which such words appear; (f) the words "shall" and "will" have interchangeable meanings for purposes of this Agreement; (g) provisions that require that a Party, the Parties or a committee hereunder "agree," "consent" or "approve" or the like shall require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter, approved minutes or otherwise; (h) words of any gender include the other gender; (i) words using the singular or plural number also include the plural or singular number, respectively; (j) references to any specific law, rule or regulation, or article, section or other division thereof, shall be deemed to include the then-current amendments thereto or any replacement law, rule or regulation thereof; (k) the phrase "non-refundable, non-creditable" shall not prohibit, limit or restrict either Party's right to obtain damages in connection with a breach of this Agreement; and (l) neither Party shall be deemed to be acting on behalf of the other Party.

14.16 **Expenses**. Each Party shall pay its own costs, charges and expenses incurred in connection with the negotiation, preparation and execution of this Agreement.

14.17 **Further Assurances**. Moderna and Metagenomi hereby covenant and agree without the necessity of any further consideration, to execute, acknowledge and deliver any and all documents and take any action as may be reasonably necessary to carry out the intent and purposes of this Agreement.

14.18 **No Third Party Beneficiary Rights**. This Agreement is not intended to and shall not be construed to give any Third Party any interest or rights (including any Third Party beneficiary rights) with respect to or in connection with any agreement or provision contained herein or contemplated hereby, except for Third-Party Indemnitees or as otherwise expressly provided for in this Agreement.

14.19 **Construction**. The Parties hereto acknowledge and agree that: (a) each Party and its counsel reviewed and negotiated the terms and provisions of this Agreement and have contributed to its revision; (b) the rule of construction to the effect that any ambiguities are resolved against the drafting Party shall not be employed in the interpretation of this Agreement; and (c) the terms and provisions of this Agreement shall be construed fairly as to all Parties hereto and not in a favor of or against any Party, regardless of which Party was generally responsible for the preparation of this Agreement.

14.20 **Cumulative Remedies**. No remedy referred to in this Agreement is intended to be exclusive unless explicitly stated to be so, but each shall be cumulative and in addition to any other remedy referred to in this Agreement or otherwise available under law.

14.21 **Extension to Affiliates**. Except as expressly set forth otherwise in this Agreement, each Party shall have the right to extend the rights and immunities granted in this Agreement to one or more of its Affiliates. All applicable terms and provisions of this Agreement, except this right to extend, shall apply to any such Affiliate to which this Agreement has been extended to the same extent as such terms and provisions apply to the Party extending such rights and immunities. For clarity, a Party extending the rights and immunities granted hereunder shall remain primarily liable for any acts or omissions of its Affiliates.

14.22 **Other Activities**. Except as expressly provided in this Agreement, each Party may: (a) engage in research, manufacturing, development or commercialization activities that utilize technologies similar to or involve products competitive with those contemplated under this Agreement; and (b) use any publicly available information and research results (including any publicly available information of the other Party) to the same extent as Third Parties generally are legally permitted to do so. Except as expressly provided in this Agreement, nothing in this Agreement, including any obligation to promote Products or any restriction on the use of Confidential Information, shall create: (i) any obligation not to research, develop, manufacture, commercialize or otherwise exploit any product; or (ii) any obligation to utilize a Sales Force for Products separate from sales forces for other products. Each Party has limited resources, and as a result it is anticipated that personnel assigned to the activities contemplated under this Agreement may also participate in other activities that may utilize technologies similar to or involve products competitive with those contemplated under this Agreement.

14.23 **Counterparts; Electronic Signatures**. This Agreement may be executed in any number of counterparts, each of which is deemed an original, but all of which together constitute one instrument. This Agreement may be executed and delivered electronically and upon such delivery such electronic signature shall be deemed to have the same effect as if the original signature had been delivered to the other Party.

[*Signature page follows*]

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed as of the Effective Date by their duly authorized representatives.

METAGENOMI, INC.

By: /s/ Brian Thomas
Name: Brian Thomas
Title: CEO

MODERNATX, INC.

By: /s/ Stephen Hoge
Name: Stephen Hoge
Title: President

Schedule A

DT Co-Co Target

- PH1

Schedule B

Manufacturing Cost

"**Manufacturing Cost**" means [***].

For purposes of this Schedule B, "**Direct Costs**" equals the sum of the following as incurred for DT Co-Co Candidates or DT Co-Co Products, as applicable:

[***].

For purposes of this Schedule B, "**Indirect Costs**" equals the sum of the following as incurred for DT Co-Co Candidates or DT Co-Co Products, as applicable:

[***].

Schedule C

Certain Technology Milestones

[***]

Schedule D

Reserved DT Targets

[***]

Schedule E

Approved Subcontractors

[***].

Schedule F

Existing Co-Co In-Licenses

[***].

Schedule G

Existing RT In-Licenses

[***].

Schedule H

Existing DT In-Licenses

[***].

Schedule I

Material Transfer Record

[***].

For clarity, defined terms used herein and not defined herein have the meanings ascribed to such terms in the Agreement. This Material Transfer Record may be executed in one or more counterparts, including by facsimile, email or PDF exchange, each of which shall be deemed to be an original as against any party whose signature appears thereon, but all of which together shall constitute but one and the same instrument.

Direction of Transfer:

☐ To Moderna, from Metagenomi

☐ To Metagenomi, from Moderna

Description of Collaboration Material: _____

_____

_____

_____

In signing below, the Moderna representative and the Metagenomi representative acknowledge that they understand and shall abide by the terms and conditions under which the Collaboration Material is provided.

_____	_____
Moderna Representative Signature	Metagenomi Representative Signature
_____	_____
Moderna Representative Name	Metagenomi Representative Name
_____	_____
Moderna Representative Title	Metagenomi Representative Title
_____	_____
Date	Date

Schedule J

Co-Co Products Profit and Loss Share

This **Schedule J** (Co-Co Products Profit and Loss Share) covers financial planning, accounting policies and procedures to be followed in determining the Co-Co Products Profit and Loss Share with respect to the DT Co-Co Products in the Territory.

1. **Principles of Reporting**.

1.1 Each Party shall provide a report of the results of its operations for the applicable period with respect to Commercialization, Medical Affairs and other related activities in the Territory for each DT Co-Co Product, which report shall include the cost categories set forth below. Following receipt of each such report from the Parties, Moderna shall generate a consolidated report, for each DT Co-Co Product in the Territory, based on the foregoing financial information provided by each Party, which report shall be in the following format (the "**P&L**"):

Cost Category	Moderna	Metagenomi	Total
Net Sales			
less Cost of Sales			
plus Licensing Income			
less Eligible Medical Affairs Costs			
less Commercialization Costs			
less Other Operating Expenses			
= Operating Profits or Losses			

1.2 **Standards**. It is the intention of the Parties to interpret each of the definitions used in the P&L in a manner that is consistent with this **Schedule J (Co-Co Products Profit and Loss Share)** and applicable U.S. GAAP principles; it being understood and agreed that "Operating Profits or Losses" shall be calculated in accordance with applicable U.S. GAAP principles. Each Party agrees to provide reasonable supporting documentation to ensure that each Party's accounting methodologies are reasonable and consistently applied. Reasonable methodologies may include a standard rate or some other appropriate basis for allocating costs. Notwithstanding anything herein to the contrary, in no event shall either Party be obligated to recognize revenue for its own purposes in a manner that is contrary to the U.S. GAAP principles used by such Party.

1.3 **Accounting Procedures**. Each Party shall record and account for its Eligible Medical Affairs Costs, Commercialization Costs or Other Operating Expenses, in each case, in a manner that allocates costs to the extent possible to a specific activity in the applicable Medical Affairs Budget, Commercialization Budget or specific category of Other Operating Expenses. For purposes of determining Net Sales, Licensing Income, Cost of Sales, Eligible Medical Affairs Costs, Commercialization Costs, or Other Operating Expenses, any expense allocated by either Party to a particular category under the definition of Net Sales, Licensing Income, Cost of Sales, Eligible Medical Affairs Costs, Commercialization Costs, or Other Operating Expenses shall not be allocated to any other category under the definition of Net Sales, Licensing Income, Cost of Sales, Eligible Medical Affairs Costs, Commercialization Costs, or Other Operating Expenses, respectively. Each Party shall determine Net Sales, Licensing Income, Cost of Sales, Eligible Medical Affairs Costs, Commercialization Costs, and Other Operating Expenses using its standard accounting procedures, consistently applied and consistent with U.S. GAAP principles, to the maximum extent practicable as if the applicable DT Co-Co Product were a solely-owned product of such Party (provided that the application of such procedures results, on balance, in outcomes that are fair and equitable to both Parties taking into consideration the interests of both Parties as reflected in this Agreement). The Parties recognize that such procedures may change from time to time and that any such changes may affect the calculation of Net Sales, Licensing Income, Cost of Sales, Eligible Medical Affairs Costs, Commercialization Costs, or Other Operating Expenses. Where the change is or would be material to the other Party, the Party proposing to make the change shall provide the other Party with an explanation of the proposed change and an estimate of the effect of the change on the relevant cost or expense category.

1.4 If necessary, a Party shall make the appropriate adjustments to the financial information it supplies under this **Schedule J** (Co-Co Products Profit and Loss Share) to conform with the format of reporting results of operation required for the P&L. The Parties understand that all Net Sales of each DT Co-Co Product shall be booked in accordance with the Selling Party's U.S. GAAP principles and otherwise in accordance with Section 1.121 (Net Sales).

2. **Frequency of Reporting**.

In order to prepare the consolidated P&L, each Party shall submit to the other Party a financial statement of such Party's Commercialization and Medical Affairs activities, Net Sales, Licensing Income, Cost of Sales, Eligible Medical Affairs Costs, Commercialization Costs, and Other Operating Expenses in the format of the P&L within [***] after the end of [***]. Each such individual P&L shall specify in reasonable detail all categories of actual costs related to Eligible Medical Affairs Costs, Commercialization Costs and Other Operating Expenses, and, upon a Party's request the other Party shall promptly provide any invoices or other supporting documentation for any External Costs or with respect to which documentation is otherwise reasonably requested. Within [***] after the last day of each Calendar Quarter, Moderna shall prepare a reconciliation report and send it to Metagenomi. Within [***] after the end of each Calendar Quarter, the Parties shall agree on a consolidated P&L for the applicable Calendar Quarter and for such Calendar Quarter, a consolidated reporting of the Operating Profits or Losses, the calculation of the Operating Profits or Losses, and the applicable sharing and determination of the corresponding cash settlement in an agreed format (such report, the "**Consolidated Report**").

Within [***] after the end of each Calendar Quarter, whichever Party is owed a payment shall prepare an invoice for such payment and deliver such invoice to the other Party. The paying Party shall pay such invoice within [***] after receipt of the invoice. For clarity, the first P&L prepared with respect to each DT Co-Co Product shall be prepared for the first Calendar Quarter in which either Party incurs Eligible Medical Affairs Costs, Commercialization Costs, or Other Operating

Expenses (regardless of whether such Eligible Medical Affairs Costs, Commercialization Costs, or Other Operating Expenses are incurred before or after Regulatory Approval for any DT Co-Co Product). In addition to the above, within [***] after the last day of the [***] of every Calendar Quarter, each Party shall submit to the other Party a report, with respect to each DT Co-Co Product, setting forth the P&L representing for each DT Co-Co Product (if any) the actual Net Sales, Cost of Sales, Licensing Income, Eligible Medical Affairs Costs, Commercialization Costs, and Other Operating Expenses recognized by such Party in such just-completed two month period as well as an estimate of expected Net Sales, Cost of Sales, Licensing Income, Eligible Medical Affairs Costs, Commercialization Costs, and Other Operating Expenses to be recognized in the third month of the current Calendar Quarter for each such DT Co-Co Product (if any).

3. **Financial Records**.

Each Party shall keep all financial records and reports required by this **Schedule J (Co-Co Products Profit and Loss Share)** in accordance with the U.S. GAAP principles to the extent applicable hereunder.

4. **Operating Profits or Loss Sharing**.

4.1 The Parties agree to share the Operating Profits or Losses with respect to Commercialization activities, Medical Affairs activities, and the activities related to Other Operating Expenses for each DT Co-Co Product (whether such Commercialization activities, Medical Affairs activities, and the activities related to Other Operating Expenses were conducted before or after Regulatory Approval for each DT Co-Co Product) as set forth in Section 7.4 (Co-Co Products Profit and Loss Share) of this Agreement.

4.2 Each Party is entitled to [***] of the Operating Profits or Losses for a given Calendar Quarter. If, taking into account the Net Sales, Cost of Sales, Licensing Income received, and Eligible Medical Affairs Costs, Commercialization Costs, and Other Operating Expenses incurred by the Parties as outlined in the P&L for such DT Co-Co Product, in each case, in such Calendar Quarter, an amount is due from one Party to the other to effect the Profit and Loss Share, then at the time the applicable Consolidated Report is delivered to Moderna, Metagenomi shall make a payment to Moderna for an amount such that Metagenomi shall be bearing [***] of the Operating Profits or Losses for the applicable Calendar Quarter. Metagenomi shall make payment in full to Moderna [***] after the date of an invoice therefor from Moderna. Likewise, if with respect to such Calendar Quarter, a balancing payment is due from Moderna to Metagenomi to effect the Profit and Loss Share, then, [***] after the applicable Consolidated Report is delivered to Metagenomi, Moderna shall pay Metagenomi an amount such that Metagenomi shall receive [***] of the Operating Profits or Losses for the applicable Calendar Quarter.

4.3 Disputes

In the event any invoiced payment that is not otherwise subject to a good faith dispute is made after the date specified in Paragraph 4.2 of this **Schedule J (Co-Co Products Profit and Loss Share)**, the paying Party shall pay the additional amounts or the receiving Party shall reimburse such excess payments, as applicable, with interest from the date originally due as provided in Section 7.15 (Default Interest) of this Agreement, and the remaining, disputed portion of any such payment shall be paid within [***] after the date on which the JSC, using good faith efforts, resolves the dispute, or as escalated in accordance with Section 2.10 (Decisions) with respect to the DT Co-Co Product.

5. **Start of Operations and Effective Accounting Date Termination**.

5.1 The Profit and Loss Share shall commence on the Effective Date. For clarity, Cost of Sales, Eligible Medical Affairs Costs, Commercialization Costs, and Other Operating Expenses incurred prior to Regulatory Approval of each DT Co-Co Product are chargeable to the applicable Profit and Loss Share in accordance with U.S. GAAP principles.

5.2 The Profit and Loss Share shall continue until this Agreement is terminated or expires.

6. **Audits**.

The record keeping and audit provisions set forth in Section 7.6 (Accounting; Audit) of this Agreement shall apply with respect to all amounts payable by either Party to the other Party under the Profit and Loss Share, including with respect to the calculation of Eligible Medical Affairs Costs, Commercialization Costs, Other Operating Expenses, Licensing Income, Cost of Sales and Net Sales with respect to the performance of Commercialization activities, Medical Affairs activities and the activities under Other Operating Expenses for each DT Co-Co Product in the Territory.

Schedule K

Existing Patents

[***]

Schedule L

RT Technology Research Plan

[***]

Schedule M

Partnership Tax Matters

1.1. **Constructive Partnership, Tax Treatment**.

1.1.1. Metagenomi and Moderna (the "**Partners**," and each a "**Partner**") acknowledge that the rights and obligations imposed on each of them pursuant to this Agreement that relate to the allocation of Profits and Loss Share pursuant to Article 7 (Fees, Royalties, & Payments), any other sharing of profits and losses from the Commercialization of the Products within the Field in the Territory, and the collaborative relationship formed between them in connection therewith, in each case solely in connection with the DT Co-Co Program, gives rise to a partnership for U.S. federal (and, to the extent applicable, state and local) income tax purposes (the "**Partnership**"), which will commence upon DC Nomination in such DT Co-Co Program (the "**Partnership Commencement Date**"). The activities of the Partners on or after the Partnership Commencement Date with respect to the Commercialization of the Product within the Field in the Territory and the rights related thereto in the DT Co-Co Program (the "**Shared Rights**") shall be deemed to be conducted in and held by the Partnership. The Partnership shall not, and shall not be deemed to, have any interest or rights relating to Product outside the Field or outside the Territory (with respect to the DT Co-Co Program) or otherwise under this Agreement other than with respect to the Shared Rights. The Partnership, and the rights and obligations set forth in this Schedule M, shall remain in existence for so long as this Agreement remains in full force and effect (provided this Agreement has not been terminated in its entirety, in accordance with Article 12 of this Agreement or otherwise) or until the DT Co-Co Program is terminated pursuant to Section 1.8 of this Schedule M, if such termination occurs prior to the termination of the Agreement in its entirety. Prior to the commencement of the Partnership, the Parties may mutually and in good faith determine that it is desirable to affect the arrangement between Metagenomi and Moderna with respect to the DT Co-Co Program as two or more Partnerships for U.S. federal income tax purposes, rather than as a single Partnership, each between Metagenomi or a Metagenomi Affiliate, as one partner, and Moderna or a Moderna Affiliate, as the second partner; provided, however, that, unless otherwise mutually agreed to by Metagenomi and Moderna, an Affiliate that is a foreign person for U.S. federal income tax purposes may only be a partner in any Partnership if the use of such foreign Affiliate shall not adversely impact the second partner. Metagenomi and Moderna shall cooperate in a reasonably prompt manner in order to effect any amendments to this Schedule M or this Agreement required or advisable as a result of the preceding sentence. The Parties further acknowledge that the arrangement described in this Agreement (including this Schedule M) shall be treated by the Parties as a partnership solely for U.S. federal and applicable state and local income tax purposes and is not intended to constitute a partnership for any non-tax, non-U.S., or any other purpose. The Partners agree not to take any tax position, whether in a tax return or otherwise, that is inconsistent with this Schedule M, other than pursuant to Section 1.7 of this Schedule M.

1.1.2. For U.S. federal income and other applicable tax purposes, on the Partnership Commencement Date Metagenomi shall be treated as contributing to the Partnership its undivided interest in the Metagenomi Licensed DT Co-Co Technology and its portion of the Commercialization rights with respect to the DT Co-Co Product in the Territory (with respect to the DT Co-Co Program) under this Agreement, and Moderna shall be treated as contributing to the Partnership its undivided interest in the Moderna Licensed DT Co-Co Technology and its portion of the Commercialization rights with respect to the DT Co-Co Product in the Territory (with respect to the DT Co-Co Program) under this Agreement, each as a Capital Contribution in exchange for an interest in the Partnership.

1.2. **Definitions**. Capitalized terms used, but not defined, herein will have the meanings ascribed to them in this Agreement. For purposes of this Schedule M:

(a) "**Book**" means the method of accounting prescribed for compliance with the capital account maintenance rules set forth in Section 1.704-1(b)(2)(iv) of the Treasury Regulations, as distinguished from any accounting method which the Partnership may adopt for other purposes such as financial reporting.

(b) "**Capital Account**" has the meaning set forth in Section 1.3.1 of this Schedule M.

(c) "**Capital Contribution**" means, for each Partner, such Partner's cash or property contributed (or deemed contributed) to the Partnership.

(d) "**Code**" means the U.S. Internal Revenue Code of 1986, as amended.

(e) "**Fiscal Year**" means the calendar year.

(f) "**Gross Asset Value**" means, with respect to any asset of the Partnership, the asset's adjusted basis for U.S. federal income tax purposes, adjusted to reflect any adjustments required or permitted by Sections 1.704-1(b)(2)(iv)(d) through (g), (m) and (s) of the Treasury Regulations, as determined by the Partnership Representative and mutually agreed upon by the Partners; provided that, in the case of any asset contributed to the Partnership, the initial Gross Asset Value of such property shall be equal to the fair market value of such asset as of the date of contribution, as determined by the Partnership Representative and mutually agreed upon by the Partners.

(g) "**Net Income**" and "**Net Losses**" mean the Book income, gain, loss, deductions and credits of the Partnership in the aggregate or separately stated, as appropriate, as of the close of each Taxable Year on the Partnership's tax return filed for U.S. federal income tax purposes (or as of any other applicable time of the relevant Taxable Year).

(h) "**Partnership Representative**" has the meaning set forth in Section 1.6.1 of this Schedule M.

(i) "**Profit Share**" has the meaning set forth in Section 1.4.1 of this Schedule M.

(j) "**Shared Rights**" has the meaning set forth in Section 1.1.1 of this Schedule M.

(k) "**Taxable Year**" means the Partnership's Fiscal Year, or such other year as may be required by Section 706 of the Code.

(l) "**Treasury Regulations**" means regulations (whether in final, proposed or temporary form) promulgated by the U.S. Department of the Treasury under the Code.

1.3. **Capital Accounts; Formation of the Partnership**.

1.3.1. The Partnership shall maintain a separate capital account for each Partner according to the rules set forth in Section 1.704-1(b)(2)(iv) of the Treasury Regulations (a "**Capital Account**").

1.3.2. Each Partner's Capital Account:

(a) shall be increased by (A) the Capital Contributions by such Partner to the Partnership after the Partnership Commencement Date, as determined by the Partnership Representative and mutually agreed upon by the Partners (net of liabilities secured by the contributed property that the Partnership is considered to assume or take subject to under Section 752 of the Code), and (B) such Partner's distributive share of Net Income and other items of income and gain allocated to such Partner after the Partnership Commencement Date;

(b) shall be decreased by (A) the amount of money distributed (or deemed distributed) to such Partner by the Partnership after the Partnership Commencement Date, (B) the fair market value of property (as determined by the Partnership Representative and mutually agreed upon by the Partners) distributed (or deemed distributed) to such Partner by the Partnership (net of liabilities secured by the distributed property that the Partner is considered to assume or take subject to under Section 752 of the Code) after the Partnership Commencement Date and (C) such Partner's distributive share of Net Losses and other items of loss and deduction allocated to such Partner after the Partnership Commencement Date; and

(c) other adjustments shall be made to the Capital Accounts of the Partners to accord with the regulations promulgated under Section 704(b) of the Code as determined by the Partnership Representative and mutually agreed upon by the Partners.

1.3.3. As of the Partnership Commencement Date, the initial Capital Account of each Partner shall be equal to the Capital Contribution of each such Partner pursuant to Section 1.1.2 of this Schedule M.

1.4. **Distributions**.

1.4.1. **Non-Liquidating Distributions**. In the event that assets of the Partnership are deemed to be distributed other than in liquidation of the Partnership, such assets shall be deemed to be distributed in accordance with the payments comprising the share of Operating Profit or Losses between Metagenomi and Moderna under Section 7.4 (Co-Co Products Profit and Loss Share) of this Agreement (the "**Profit Share**"), unless otherwise determined by the Partnership Representative and mutually agreed upon by the Partners.

1.4.2. **Liquidating Distribution**. In the event that the Partnership is terminated pursuant to Section 1.8 of this Schedule M, then the assets of the Partnership shall be distributed (or deemed to be distributed) in liquidation of the Partnership in accordance with the Profit Share, and the requirements under Section 5.6 of this Agreement shall be deemed to occur after such distribution and in exchange for payments required pursuant to Section 7.11 of this Agreement, as applicable.

1.4.3. **Withholding for Taxes**. Subject to the provisions of Section 7.16.3 of this Agreement, any Partner is authorized to withhold from payments made to the other Partner that are treated as distributions described in Section 1.4.1 or Section 1.4.2 of this Schedule M to the Partners, and with respect to allocations pursuant to Section 1.5 of this Schedule M to the Partners, and to pay over to any federal, state or local government, any such taxes as are required to be deducted or withheld under any provision of Applicable Law. Any amounts so withheld shall be treated as distributed pursuant to Section 1.4.1 or Section 1.4.2 of this Schedule M, as applicable.

1.5. **Allocations, Section 704(c)**.

1.5.1. Except as required by Section 1.5.2 or Section 1.5.3 of this Schedule M, the Net Income or Net Loss for any Taxable Year shall be allocated to the Partners in such a manner so that the Capital Account of each Partner equals (as of the end of such allocation period and to the fullest extent possible) the amount that would be distributed to such Partner if all properties of the Partnership, including cash, were sold for cash equal to their respective Gross Asset Values, all liabilities allocable to such properties were then due and were satisfied according to their terms, all minimum gain chargebacks required by this Agreement and the Treasury Regulations were made, all obligations of Partners to contribute additional capital to the Partnership were satisfied and all remaining proceeds from such sale were distributed pursuant to the order and priority of Section 1.4.2 of this Schedule M.

1.5.2. **Special Allocations**. Notwithstanding Section 1.5.1 of this Schedule M, the Partnership Representative may, if mutually agreed upon by the Partners, specially allocate any costs or expenses that are disproportionately borne by one Partner to such Partner.

1.5.3. **Regulatory Allocations**. In the event any Partner unexpectedly receives any adjustments, allocations or distributions described in Sections 1.704-1(b)(2)(ii)(d)(4), 1.704-1(b)(2)(ii)(d)(5) or 1.704-1(b)(2)(ii)(d)(6) of the Treasury Regulations, items of income (including gross income) and gain shall be specially allocated to such Partner in an amount and manner sufficient to eliminate the deficit balance in such Partner's Capital Account (in excess of (i) the amount such Partner is obligated to restore upon liquidation of the Partnership or upon liquidation of such Partner's interest in the Partnership and (ii) such Partner's share of the Minimum Gain (as defined in Section 1.704-2 of the Treasury Regulations)) created by such adjustments, allocations or distributions as quickly as possible. Additionally, there are hereby incorporated herein such special allocation provisions governing the allocation of income, deduction, gain, and loss for U.S. federal income tax purposes as may be necessary under, and in the manner required by, the Treasury Regulations to ensure that this Schedule M complies with all requirements of Section 1.704-2 of the Treasury Regulations relating to "minimum gain" and "partner nonrecourse debt minimum gain" and the allocation and chargeback of so-called "nonrecourse deductions" and "partner nonrecourse deductions", including a "qualified income offset".

1.5.4. Except as otherwise provided in this Section 1.5.4 and in Section 1.5.5 of this Schedule M, for U.S. federal income tax purposes, all items of income gain, loss, deduction and credit shall be allocated among the Partners in the same manner the corresponding Book item was allocated pursuant to Section 1.5.1 or Section 1.5.2 of this Schedule M. In the case of contributed property, items of income, gain, loss, deduction and credit, as determined for U.S. federal income tax purposes, shall be allocated first in a manner consistent with the requirements of Section 704(c) of the Code to take into account the difference between the Gross Asset Value of such property and its adjusted tax basis at the time of contribution. If the Gross Asset Value of any asset of the Partnership is adjusted pursuant to the terms of this Schedule M, then subsequent allocations of income, gain, loss, deduction and credit, as determined for U.S. federal income tax purposes, shall be allocated with respect to such assets so as to take into account such adjustment in the same manner as under Section 704(c) of the Code and the Treasury Regulations promulgated thereunder.

1.5.5. Metagenomi and Moderna shall mutually and in good faith agree on the method under Section 704(c) of the Code and the Treasury Regulations to be utilized by the Partnership prior to the Partnership Commencement Date. For the sake of clarity, the allocations required by Section 1.5.4 and this Section 1.5.5 of this Schedule M are solely for purposes of U.S. federal and applicable state and local income taxes and will not affect the allocation of Net Income or Net Losses as between the Partners or any Partner's Capital Account.

1.6. **Tax Reports, Tax Elections and Partnership Representative**.

1.6.1. To the extent permitted under Applicable Law, the Partnership intends to elect out of the application of Subchapter C of Chapter 63 of the Code (i.e., the partnership audit rules) and any applicable state or local equivalent. For any applicable Taxable Year (or portion thereof) where the Partnership is able to so elect, the Partners agree to cooperate to share information relevant to the matters addressed by this Schedule M and agree not to take any position on any tax return applicable to the matters addressed by this Schedule M that may be materially adverse to the other Partner without the consent of the other Partner, not to be unreasonably withheld, delayed or conditioned. To the extent required after giving effect to the first sentence of Section 1.6 of this Schedule M, the Partnership hereby designates Moderna to act as the "partnership representative" of the Partnership within the meaning of Section 6223 of the Code (along with any state or local equivalent, the "**Partnership Representative**"), and the Partnership Representative shall have the authority to appoint the "designated individual" within the meaning of Treasury Regulations Section 301.6223-1(b)(3). If the Partnership is unable to elect out of the partnership audit rules, the Partnership Representative is authorized and required to represent the Partnership in connection with all examinations of the Partnership's affairs by U.S. federal (and any applicable state) income tax authorities, including resulting administrative and judicial proceedings, to make any elections in connection therewith that are mutually agreed upon by the Partners, and to incur expenses for professional services and costs associated therewith, which shall be equally borne by each of Metagenomi and Moderna; provided, that the Partnership Representative shall notify Metagenomi of any such administrative and judicial proceedings involving the Partnership and shall provide Metagenomi the opportunity to jointly participate in any such matters. Metagenomi agrees to cooperate with the Partnership Representative as reasonably requested by the Partnership Representative with respect to the conduct of such proceedings. The Partnership Representative will, with mutual agreement by the Partners,

determine whether the Partnership (either on its own behalf or on behalf of the Partners) will contest or continue to contest any tax deficiencies assessed or proposed to be assessed by any taxing authority provided, however, that the Partnership Representative shall not (i) agree or consent to compromise or settle such matters or (ii) take any action that disproportionately adversely affects Metagenomi, without the mutual agreement of the Partners. Any deficiency for taxes imposed on any Partner (including penalties, additions to tax or interest imposed with respect to such taxes) will be paid by such Partner, and if paid by another Partner, will be recoverable from the Partner on which such deficiency was imposed (including by offset against distributions otherwise payable to such Partner). The Partners agree to cooperate in good faith to notify each other regarding any tax notices or audits relating to the Partnership and to provide any information or documentation reasonably requested by the Partnership Representative in connection with its duties under this Section 1.6.1 of this Schedule M. In no event shall the Partnership Representative require the Partners to file an amended tax return. A Partner's obligation to cooperate with the Partnership Representative and to indemnify and make payments to another Partner under this Section 1.6.1 of this Schedule M will survive the termination, dissolution, liquidation and winding up of the Partnership and the transfer, assignment or liquidation of a Partner's interest in the Partnership.

1.6.2. The Partnership Representative shall prepare and file, or cause to be prepared and filed, all necessary U.S. federal, state or local income tax returns for the Partnership. The Partnership Representative shall have such tax returns prepared by a "big four" accounting firm, which initially shall be Ernst & Young, such accounting firm to be chosen with Metagenomi's consent, and the cost of the preparation of such tax returns shall be equally borne by each of Metagenomi and Moderna. At least 60 days before the due date (including extensions) of any such tax return, the Partnership Representative shall submit a copy of such tax return to Metagenomi for its review and comment. The Partners shall mutually agree on the preparation of such tax returns, making any required changes no fewer than 10 days prior to the due date of such tax return. Within 180 days after the end of each Taxable Year, the Partnership Representative shall cause the Partnership to furnish Metagenomi with an IRS Form K-1 for such Taxable Year. In addition, the Partnership shall deliver or cause to be delivered not later than the 15th day after the end of each Taxable Year to a requesting Partner all information necessary for the preparation of such Partner's U.S. federal income tax returns and any state, local and other income tax returns that such Partner is required to file. Furthermore, the Partnership Representative shall jointly determine with Metagenomi regarding any matter for which the Partnership Representative is responsible or over which the Partnership Representative has discretion under this Schedule M, including without limitation the preparation of any tax return or the making of any election hereunder.

1.6.3. The Partners shall jointly determine whether to make or revoke any available election pursuant to the Code. Each Partner will, upon request, use reasonable efforts to supply the information necessary to give proper effect to any such election. The Partners hereby agree to cooperate in good faith regarding any matters related to any tax elections or tax reporting positions of the Partnership.

1.7. **Tax Position**. Unless otherwise required by Applicable Law, no Partner will take a position on such Partner's U.S. federal or other applicable income tax returns, in any claim for refund or in any administrative or legal proceedings that is inconsistent with this Agreement (including this Schedule M) or with any information return filed by the Partnership. If any Partner believes that such a position is required by Applicable Law, such Partner must immediately notify the other Partner in writing, citing such Applicable Law or any interpretation thereof.

1.8. **Termination of Partnership**. With respect to the DT Co-Co Program, the Partnership shall terminate upon the earlier of (i) the expiration or termination of the DT Co-Co Program, or (ii) an Opt-Out by either Party from the DT Co-Co Program.

Schedule N

Joint Press Release

Metagenomi and Moderna Establish Collaboration to Develop Next-Generation *In Vivo* Gene Editing Therapeutics

- *The collaboration will combine Metagenomi's next-generation CRISPR-based and other novel gene editing systems with Moderna's mRNA and LNP technologies to accelerate the development of in vivo gene editing therapeutics*

- *Multi-year research collaboration funded by Moderna covering a series of undisclosed disease targets*

- *Metagenomi to receive up-front cash payment, equity investment, and research funding, with potential for additional research, milestone and royalty payments*

EMERYVILLE, CA and CAMBRIDGE, MA. -- Metagenomi, Inc., a genetic medicines company with a versatile portfolio of next-generation gene editing tools, and Moderna Inc. (NASDAQ:MRNA), a biotechnology company pioneering messenger RNA (mRNA) therapeutics and vaccines, today announced that the two companies have entered into a strategic research and development collaboration focused on advancing new gene editing systems for *in vivo* human therapeutic applications. The collaboration will utilize Metagenomi's novel gene editing tools and leverage Moderna's mRNA platform, as well as lipid nanoparticle (LNP) delivery technologies, with the goal of developing curative therapies for patients with serious genetic diseases.

"Metagenomi has demonstrated the power of its proprietary metagenomics approach that mines the Earth's natural environment to discover next-generation gene editing tools and has developed discovery capabilities with the potential to address multiple diseases," said Eric Huang, PhD, General Manager & Chief Scientific Officer, Moderna Genomics (mGx). "Their discovery platform and expertise will expand Moderna Genomics' ongoing efforts to develop innovative *in vivo* gene editing therapies to address a significant unmet medical need. This collaboration represents another milestone on our journey to create transformational genome-engineering based medicines."

"Gene editing has the potential to provide a cure for millions of patients living with genetic disease. Our partnership with Moderna is designed to accelerate the creation of genetic medicines using Metagenomi's naturally derived, compact, modular and precise gene editing systems," said Brian C. Thomas, PhD, CEO and Co-Founder of Metagenomi. "This partnership will enhance our shared vision to forge transformative therapeutics for patients."

"Unlocking the therapeutic potential of gene editing requires a long-term commitment to develop the best technologies for both *in vivo* delivery and gene repair," said Jak Knowles, MD, CBO at Metagenomi. "We share Moderna's goal to develop mRNA-based medicines, and we are thrilled to partner with them."

About the Collaboration

Under the terms of the collaboration, Metagenomi and Moderna will advance a series of *in vivo* gene editing therapeutics against undisclosed targets. Metagenomi will utilize its vast toolbox of gene editing systems in combination with Moderna's mRNA and LNP technologies, to deliver next-generation therapies for genetic diseases. Metagenomi will receive an upfront cash payment and is eligible to receive certain target option exercise fees as well as development, regulatory and commercial milestone payments, plus tiered royalties on net sales of any products that are commercialized by Moderna. Moderna has also agreed to make an equity investment in Metagenomi in the form of a convertible note.

About Metagenomi

Metagenomi is a gene editing company committed to developing potentially curative therapeutics by leveraging a proprietary toolbox of next-generation gene editing systems to accurately edit DNA where current technologies cannot. Our metagenomics-powered discovery platform and analytical expertise reveal novel cellular machinery sourced from otherwise unknown organisms. We adapt and forge these naturally evolved systems into powerful gene editing systems that are ultra-small, extremely efficient, highly specific and have a decreased risk of immune response. These systems fuel our pipeline of novel medicines and can be leveraged by partners. Our goal is to revolutionize gene editing for the benefit of patients around the world. For more information, please visit https://metagenomi.co/.

About Moderna

In 10 years since its inception, Moderna has transformed from a science research-stage company advancing programs in the field of messenger RNA (mRNA), to an enterprise with a diverse clinical portfolio of vaccines and therapeutics across six modalities, a broad intellectual property portfolio in areas including mRNA and lipid nanoparticle formulation, and an integrated manufacturing plant that allows for both clinical and commercial production at scale and at unprecedented speed. Moderna maintains alliances with a broad range of domestic and overseas government and commercial collaborators, which has allowed for the pursuit of both groundbreaking science and rapid scaling of manufacturing. Most recently, Moderna's capabilities have come together to allow the authorized use of one of the earliest and most- effective vaccines against the COVID-19 pandemic.

Moderna's mRNA platform builds on continuous advances in basic and applied mRNA science, delivery technology and manufacturing, and has allowed the development of therapeutics and vaccines for infectious diseases, immuno-oncology, rare diseases, cardiovascular diseases and autoimmune diseases. Moderna has been named a top biopharmaceutical employer by Science for the past six years. To learn more, visit www.modernatx.com.

Moderna Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including regarding: the collaboration between Moderna and Metagenomi to accelerate the development of gene editing technologies; the financial structure for that collaboration and potential for payments; and the potential development of genetic medicines using gene editing systems. The forward-looking statements in this press release are neither promises nor guarantees, and you should not place undue reliance on these forward-looking statements because they involve known and unknown risks, uncertainties, and other factors, many of which are beyond Moderna's control and which could cause actual results to differ materially from those expressed or implied by these forward-looking statements. These risks, uncertainties, and other factors include those other risks and uncertainties described under the heading "Risk Factors" in Moderna's most recent Annual Report on Form 10-K filed with the U.S. Securities and Exchange Commission (SEC) and in subsequent filings made by Moderna with the SEC, which are available on the SEC's website at www.sec.gov. Except as required by law, Moderna disclaims any intention or responsibility for updating or revising any forward-looking statements contained in this press release in the event of new information, future developments or otherwise. These forward-looking statements are based on Moderna's current expectations and speak only as of the date hereof.

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Schedule O

DT Co-Co Research Plan

[***]

Exhibit 10.7

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

COLLABORATION AND LICENSE AGREEMENT

BETWEEN

METAGENOMI, INC.

AND

IONIS PHARMACEUTICALS, INC.

DATED NOVEMBER 10, 2022

Schedules:

COLLABORATION AND LICENSE AGREEMENT

This **COLLABORATION AND LICENSE AGREEMENT** (this "**Agreement**") is entered into as of November 10, 2022 (the "**Effective Date**"), by and between Ionis Pharmaceuticals, Inc., a Delaware corporation, having its principal place of business at 2855 Gazelle Court, Carlsbad, CA 92010 (**"Ionis**"), and Metagenomi, Inc., a Delaware corporation, having its principal place of business at 1545 Park Avenue, Emeryville, CA 94608 ("**Metagenomi**"). Metagenomi and Ionis are sometimes referred to herein individually as a **"Party"** and collectively as the "**Parties.**"

WHEREAS, Metagenomi is a biopharmaceutical company that controls certain patent rights, know-how, technology, and expertise with respect to gene editing;

WHEREAS, Ionis is a biopharmaceutical company focused on developing and commercializing pharmaceutical and biopharmaceutical products;

WHEREAS, Metagenomi and Ionis desire to enter into a collaboration to utilize Metagenomi's and Ionis' expertise and each Party's platform to perform research services and other activities focused on the (a) discovery and development of therapeutics, and (b) advancing certain gene editing technologies to enable improved performance, novel mechanisms, and novel delivery strategies; and

WHEREAS, Metagenomi desires to grant to Ionis, and Ionis desires to receive from Metagenomi, an exclusive license under the Licensed Technology to Exploit Licensed Systems and Licensed Products under the terms and conditions set forth herein.

NOW, THEREFORE, the Parties agree as follows:

Article 1
Overview

The Parties intend to undertake a strategic research collaboration under this Agreement, consisting of drug discovery and exploratory research activities to advance new medicines using gene editing strategies, with the goal of discovering novel medicines for Ionis to Develop and Commercialize on its own or to co-Develop and co-Commercialize with Metagenomi.

1.1. **Drug Discovery Program**. The Parties intend that, under this Agreement, the Parties will seek to discover therapeutic products directed to specific genetic targets selected by Ionis under a Drug Discovery Program and pursuant to a Drug Discovery Plan for each specific genetic target, as permitted by this Agreement.

1.2. **Development and Commercialization**. For each Drug Discovery Program, once the Parties identify a candidate that is suitable for Development, as between the Parties, Ionis will be responsible for Development and Commercialization of products resulting from such Drug Discovery Program either on its own or, if Metagenomi exercises its option, together with Metagenomi.

1.3. **Co-Development and Co-Commercialization**. Metagenomi will have an exclusive option to co-Develop and co-Commercialize products with Ionis under a limited number of Drug Discovery Programs. For any such option exercised by Metagenomi, the Parties will enter into a separate Co-Development and Co-Commercialization Agreement, as set forth herein. Metagenomi will have a right to opt-out of such co-Development and co-Commercialization at specific times, as set forth herein.

1.4. **Exploratory Research**. The Parties will also conduct an Exploratory Research Program under this Agreement. The Parties intend that, under the Exploratory Research Program, the Parties will conduct collaborative research pursuant to an Exploratory Research Plan to jointly optimize Guide RNA and select delivery technologies and such other activities as agreed upon by the Joint Research Committee in accordance with this Agreement. Any such improvements resulting from the Parties' exploratory research under this Agreement will be incorporated into the Parties' drug discovery collaboration.

1.5. **Governance**. The Parties have agreed to form (a) a Joint Steering Committee to coordinate, oversee, and monitor the Parties' activities under this Agreement; and (b) a Joint Research Committee reporting to the JSC to coordinate, oversee, and monitor the Parties' research and drug discovery activities under this Agreement.

1.6. **Purpose**. The purpose of this Article 1 (Overview) is to provide a high-level overview of the roles, responsibilities, rights, and obligations of each Party under this Agreement, and therefore this Article 1 (Overview) is qualified in its entirety by the more detailed provisions of this Agreement set forth below.

Article 2
Collaboration

2.1. **Selection of Collaboration Targets.**

2.1.1. **Wave 1 Targets**.

(a) **Initial Wave 1 Target**. The first Collaboration Target will be [***], as set forth on Schedule 2.1.1(a) ([***]) ("[***]").

(b) **Second Wave 1 Target**. Within [***] of the Effective Date, the Parties will mutually agree on the second gene target as a Collaboration Target (the "**Second Wave 1 Target**"). The Second Wave 1 Target will be a target for which a Licensed Product would be delivered only to [***]. If the Parties do not agree on a Second Wave 1 Target within such [***] period, then the Parties will mutually agree on an additional period to determine a second gene target to be the Second Wave 1 Target.

(c) **Additional Wave 1 Target Selection**. At any time during the period commencing on the Effective Date and ending on the date that is [***] following the Effective Date ("**Additional Wave 1 Target Selection Period**"), Ionis may, in its sole discretion, but subject to Section 2.1.4 (Encumbrance Check), select up to two additional gene targets as proposed Collaboration Targets by providing written notice to Metagenomi (each such notice, the "**Additional Wave 1 Target Notice**"), which notice will identify the proposed target ("**Additional Wave 1 Target**"). The Additional Wave 1 Targets will be targets for which a Licensed Product would be delivered only to [***] or only to [***]; *provided* that no more than one Additional Wave 1 Target will be a target for which a Licensed Product would be delivered to [***].

2.1.2. **Wave 2 Target Options**. If, at any time during the Drug Discovery Term, (a) an IND for any Licensed Product directed to a Wave 1 Target is filed with the applicable Regulatory Authority or (b) the Parties achieve [***] for a [***] under the Exploratory Research Activities (the "**Wave 2 Target Selection Period**"), then Ionis may, in its sole discretion, but subject to Section 2.1.4 (Encumbrance Check), select up to four additional gene targets as proposed Collaboration Targets by providing written notice to Metagenomi (each such notice, a "**Wave 2 Target Notice**"), which notice will identify the proposed target ("Wave 2 Target"). Each Wave 2 Target will be a target for which a Licensed Product would be delivered only to [***] or only to [***], or any other [***] that has, at the time of the Wave 2 Target Notice for such Wave 2 Target, achieved [***].

2.1.3. **Target Substitutions**. On a Drug Discovery Program-by-Drug Discovery Program basis, Ionis will have the right to substitute the Collaboration Target for a Drug Discovery Program in accordance with this Section 2.1.3 (Target Substitutions).

(a) **Discretionary Substitutions**. At any time before [***] (the "**Target Substitution Period**"), Ionis may, in its sole discretion, but subject to Section 2.1.4 (Encumbrance Check), replace the Collaboration Target for such Drug Discovery Program by providing written notice to Metagenomi, which notice will identify the proposed replacement gene target. Ionis may substitute (i) up to two Wave 1 Targets other than [***] and (ii) up to two Wave 2 Targets that become Collaboration Targets, in each case ((i) and (ii)), for any reason. Any Collaboration Target that is substituted out pursuant to this Section 2.1.3(a) (Discretionary Substitutions) will [***].

(b) **Substitutions for Technological Infeasibility**. If the JSC determines that it is technologically infeasible to Develop a Development Candidate for a Collaboration Target ("**Technological Infeasibility**"), then Ionis may, in its sole discretion, but subject to Section 2.1.4 (Encumbrance Check), substitute such Collaboration Target by providing written notice to Metagenomi, which notice will identify the proposed replacement gene target. There is no limit on the number of replacements Ionis may make pursuant to this Section 2.1.3(b) (Substitutions for Technological Infeasibility) and any substitutions that are for Technological Infeasibility will not count towards the number of substitutions Ionis can make pursuant to Section 2.1.3(a) (Discretionary Substitutions). Any Collaboration Target that is substituted out pursuant to this Section 2.1.3(b) (Substitutions for Technological Infeasibility) will not be eligible to be selected as a Proposed Replacement Target except as set forth in Section 2.1.3(c) (Substitutions After Resolution of Technological Infeasibility).

(c) **Substitution After Resolution of Technological Infeasibility**. If a Collaboration Target is substituted out for Technological Infeasibility pursuant to Section 2.1.3(b) (Substitutions for Technological Infeasibility) and, during the Drug Discovery Term and within [***] from when such substitution occurred, Metagenomi later reasonably believes that it can resolve the issue that led to the Technological Infeasibility, then Metagenomi will notify Ionis, which notice will include a description of the approach Metagenomi intends to take to resolve the Technological Infeasibility. Subject to clauses (i) and (ii) of Section 2.1.4(a) (Encumbered Targets), Ionis will have the right to substitute a current Collaboration Target for such previous Collaboration Target by providing written notice to Metagenomi within [***] of receipt of notice from Metagenomi that it believes it can solve the issue that led to the Technological Infeasibility. There is no limit on the number of replacements Ionis may make pursuant to this Section 2.1.3(c) (Substitutions After Resolution of Technological Infeasibility) and any substitutions that are as a result of resolution of a Technological Infeasibility will not count towards the number of substitutions Ionis can make pursuant to Section 2.1.3(a) (Discretionary Substitutions).

(d) **Substitution Procedure**. Any written notice provided by Ionis to Metagenomi pursuant to Section 2.1.3(a) (Discretionary Substitutions), Section 2.1.3(b) (Substitutions for Technological Infeasibility), or Section 2.1.3(c) (Substitutions After Resolution of Technological Infeasibility) will be a "**Replacement Target Notice**" and the proposed replacement gene target identified in any Replacement Target Notice will be a "**Proposed Replacement Target**". Each Replacement Target Notice will specify which current Collaboration Target should be removed as a result of such replacement, and, unless otherwise agreed by the Parties, each Proposed Replacement Target will be a target for which a Licensed Product would be delivered to the same tissue as the Collaboration Target subject to the substitution. Promptly after such Proposed Replacement Target becomes a Collaboration Target pursuant to Section 2.1.4(c) (Effects if a Proposed Target is Available), Metagenomi will re-allocate the resources dedicated to the Drug Discovery Program for the Collaboration Target that was removed as a result of the substitution to the Drug Discovery Program for the new Collaboration Target as soon as practicable, but in any event within [***] after such Proposed Replacement Target becomes a Collaboration Target pursuant to Section 2.1.4(c) (Effects if a Proposed Target is Available).

2.1.4. Encumbrance Check.

(a) **Encumbered Targets**. Metagenomi will notify Ionis within [***] after Metagenomi's receipt of an Additional Wave 1 Target Notice, a Wave 2 Target Notice, or a Replacement Target Notice if, at the time of receipt of such notice, (i) Metagenomi is then engaged in *bona fide* discussions with a Third Party for an agreement, [***], pursuant to which Metagenomi would grant to such Third Party conflicting rights to Develop or Commercialize products directed to such Proposed Target such that Metagenomi could not grant Ionis the rights or licenses granted to Ionis hereunder with respect to such Proposed Target, (ii) Metagenomi is contractually obligated to grant, or has granted, to a Third Party conflicting rights to Develop or Commercialize products directed to such Proposed Target such that Metagenomi could not grant Ionis the rights or licenses granted to Ionis hereunder with respect to such Proposed Target, as evidenced by a binding written agreement, or (iii) the Proposed Target is the subject of an active *bona fide* then ongoing internal research and development program at Metagenomi, as evidenced by [***] (each of (i) through (iii), a "**Pre-Existing Restriction**" and such Proposed Target, an "**Encumbered Target**"). Notwithstanding the foregoing, a Collaboration Target that has been substituted out for Technological Infeasibility but for which Ionis later selects as a Proposed Replacement Target pursuant to Section 2.1.3(c) (Substitutions After Resolution of Technological Infeasibility) will only be an Encumbered Target if the foregoing clause (i) or clause (ii) applies with respect to such Proposed Replacement Target. If Metagenomi does not notify Ionis within such [***] period that the Proposed Target is an Encumbered Target, then Ionis may provide a second notice to Metagenomi indicating that the Proposed Target will be deemed Available if Metagenomi does not respond to such second notice within [***]. If Metagenomi (x) notifies Ionis that a Proposed Target is Available or (y) does not provide notice that a Proposed Target is an Encumbered Target

within the original [***] or within [***] after Ionis' second notice, then, in either case ((x) or (y)), such Proposed Target will be deemed to be Available, at which point Section 2.1.4(c) (Effects if a Proposed Target is Available) will apply. If a Proposed Target is an Encumbered Target, then Ionis may select another Proposed Target (and another if such other Proposed Target is an Encumbered Target and so on) until such time that Ionis selects a Proposed Target that is Available, at which point Section 2.1.4(c) (Effects if a Proposed Target is Available) will apply.

(b) **Expiration of Pre-Existing Restrictions**. On [***], Ionis will use good faith efforts to [***], to facilitate its activities pursuant to Section 4.1.5(b) (Specific Responsibilities of the JSC), [***]. If at any time during the Additional Wave 1 Target Selection Period, the Wave 2 Target Selection Period, or the Target Substitution Period, as applicable, any Pre-Existing Restriction that precluded Ionis from selecting a Proposed Target as a Collaboration Target later expires, terminates, or is otherwise modified such that such Proposed Target would no longer be an Encumbered Target, and at such time (i) Ionis has not designated the maximum amount of Collaboration Targets as permitted under this Agreement, or (ii) Ionis has designated all Collaboration Targets as permitted under this Agreement, but Ionis has not exhausted its right to substitute existing Collaboration Targets as permitted under Section 2.1.3(a) (Discretionary Substitutions), Section 2.1.3(b) (Substitutions for Technological Infeasibility), or Section 2.1.3(c) (Substitution After Resolution of Technological Infeasibility) (such time period prior to the occurrence of both (i) and (ii), the "**Target Selection and Substitution Period**"), then Metagenomi will notify Ionis of such expiration, termination, or modification unless Ionis has notified the JSC that it is no longer interested in pursuing that Encumbered Target as a Collaboration Target.

(c) **Effects if a Proposed Target is Available**. If Ionis confirms in writing to Metagenomi that a Proposed Target should be deemed to be a "Collaboration Target" under this Agreement within [***] of a Proposed Target being deemed Available pursuant to Section 2.1.4(a) (Encumbered Targets), then (i) such Proposed Target will be deemed a "Collaboration Target" as of the date of such notice, (ii) the Parties, through the JRC, will develop a Drug Discovery Plan for such Collaboration Target in accordance with Section 2.2.2 (Additional Drug Discovery Plans), (iii) if the Proposed Target was a Wave 2 Target, then Ionis will pay any Wave 2 Target Selection Fee in accordance with Section 9.2 (Wave 2 Target Selection Fee) and, if applicable, the Drug Discovery Term will be extended pursuant to Section 2.2.7 (Drug Discovery Term), and (iv) if the Proposed Target was a Proposed Replacement Target, then the Collaboration Target that was substituted out will no longer be a "Collaboration Target". If Ionis does not respond within [***] of a Proposed Target being deemed Available pursuant to Section 2.1.4(a) (Encumbered Targets), then such Proposed Target will not be deemed a "Collaboration Target".

2.2. Drug Discovery Program.

2.2.1. Initial Drug Discovery Plan. The principal Development objectives for each Drug Discovery Program will be set forth in a written plan that includes: (a) the specific activities to be performed by each Party through selection of a Development Candidate for such Drug Discovery Program, including the Gene Editing modality within the Field for such Development Candidate, (b) the estimated timelines for the performance of such activities,

and (c) the Development Candidate selection criteria (each such plan, as may be updated from time to time, a "**Drug Discovery Plan**" and the activities to be performed by the Parties thereunder, the "**Drug Discovery Activities**"). In addition, each Drug Discovery Plan will include a written budget pursuant to which Metagenomi will perform the Drug Discovery Activities allocated to Metagenomi under such Drug Discovery Plan, which budget will include (i) the number of FTEs to be dedicated by Metagenomi under such Drug Discovery Plan, and (ii) any Out-of-Pocket Costs expected to be incurred by Metagenomi in the performance of such Drug Discovery Activities on a line-item basis (each such budget, a "**Drug Discovery Budget**"). The initial Drug Discovery Plan agreed to by the Parties for [***] is attached hereto as Schedule 2.2 ([***] Drug Discovery Plan).

2.2.2. **Additional Drug Discovery Plans**. No later than [***] after (a) the Parties agree on the Second Wave 1 Target pursuant to Section 2.1.1(b) (Second Wave 1 Target) or (b) a Proposed Target is deemed a Collaboration Target under this Agreement pursuant to Section 2.1.4(c) (Effects if a Proposed Target is Available), which period shall be appropriately extended for the Parties to undertake the process described in Section 2.2.4 ([***] for Additional Drug Discovery Plans), if applicable, in each case, the Parties will develop, through the JRC, a Drug Discovery Plan for such Collaboration Target (an "**Additional Drug Discovery Plan**") in accordance with this Section 2.2.2 (Additional Drug Discovery Plans). The JRC will submit each proposed Additional Drug Discovery Plan to the JSC for the JSC to review, discuss, and determine whether to approve. Unless otherwise agreed by the Parties, the content of each Additional Drug Discovery Plan will be consistent in scale and scope to that set forth in the Drug Discovery Plan for [***] attached hereto as Schedule 2.2 ([***] Drug Discovery Plan).

2.2.3. **Amendments to the Drug Discovery Plans**. At least [***] during the Drug Discovery Term, or upon either Party's request, the JRC will develop and propose updates to each Drug Discovery Plan; *provided* that in no event will those updates include [***] the applicable Collaboration Target unless such [***] pursuant to Section 2.2.5 (Development of [***] for a Drug Discovery Program). Any proposed updates to a Drug Discovery Plan will be submitted to the JSC for approval. The JSC will review, discuss, and determine whether to approve any such proposed update to a Drug Discovery Plan. Each such update to a Drug Discovery Plan will become effective and will supersede the previous Drug Discovery Plan for the applicable Drug Discovery Program upon approval thereof by the JSC.

2.2.4. [***] for Additional Drug Discovery Plans.

(a) **New** [***]. At each JSC meeting during the Target Selection and Substitution Period, Metagenomi will use good faith efforts to notify Ionis if it reasonably believes that [***] (each such [***]). In addition, [***].

(b) **Selection of** [***]. The JSC will discuss and determine the [***] for the Second Wave 1 Target and each Proposed Target that is deemed a Collaboration Target under this Agreement pursuant to Section 2.1.4(c) (Effects if a Proposed Target is Available) from the [***], and, subject to Section 2.2.4(c) (Incremental Development Costs), such [***] will be set forth in the applicable Additional Drug Discovery Plan determined pursuant to Section 2.2.2 (Additional Drug Discovery Plans). For clarity, if the JSC selects for inclusion in an Additional Drug Discovery Plan [***], then Section 2.2.4(c) (Incremental Development Costs) is not applicable and [***] for the applicable Drug Discovery Program.

(c) **Incremental Development Costs**. If, in connection with the JRC's discussion and development of an Additional Drug Discovery Plan, Ionis is considering, in good faith, selecting [***] for the applicable Drug Discovery Program and such [***], then Ionis will notify Metagenomi (an "**Initial Interest Notice**" and the [***] identified in such notice, a "[***]"). If Metagenomi reasonably believes that the costs to progress a Drug Discovery Plan for the applicable Collaboration Target with the [***] are more than [***] of the costs to progress a Drug Discovery Plan for a [***] (the difference between the costs to progress a Drug Discovery Plan for a [***] *versus* the costs to progress a Drug Discovery Plan for the [***], the "**Incremental Development Costs**"), then Metagenomi will notify Ionis of such Incremental Development Costs (an "**Increased Cost Notice**") within [***] of receipt of the Initial Interest Notice. For a period of [***] from Ionis' receipt of the Increased Cost Notice, the Parties will use Commercially Reasonable Efforts to negotiate, in good faith, economic terms that compensate Metagenomi for the Incremental Development Costs. If the Parties are unable to mutually agree on such financial compensation during such [***] period, then, at Ionis' election, (i) Ionis may select a different [***] and the process set forth in this Section 2.2.4(c) (Incremental Development Costs) will continue to apply until (1) the Parties agree on financial terms to compensate Metagenomi for the applicable Incremental Development Costs for [***], (2) Metagenomi does not provide an Increased Cost Notice for a [***], or (3) the [***], or (ii) Ionis may select a [***]. If the Parties mutually agree on the economic terms [***] or if Metagenomi has not provided an Increased Cost Notice to Ionis for a [***] as set forth above, then, in either case, such [***] will be set forth in the applicable Drug Discovery Plan, [***], and such mutually agreed economic terms will be set forth in a written agreement between the Parties.

2.2.5. **Development of** [***] **for a Drug Discovery Program**. If either Party wishes to Develop a Licensed Product comprising a [***] that is not already set forth in the Drug Discovery Plan for such Drug Discovery Program, then such Party may propose such additional activities to the other Party and the Parties will discuss whether to amend such Drug Discovery Plan or create a separate Drug Discovery Program for such [***]. If the Parties agree to include the additional [***] in the Drug Discovery Program, then the Parties will enter into a mutually acceptable amended Drug Discovery Plan that includes the additional [***]. For clarity, neither Party will have any obligation to agree to amend a Drug Discovery Plan to include any additional [***] that were not set forth in the initial Drug Discovery Plan for the applicable Drug Discovery Program.

2.2.6. **Delivery of Development Candidate; Development Candidate Report**. The objective of each Drug Discovery Plan will be to identify both a lead and a backup candidate for development that each meet the development candidate criteria set forth in such Drug Discovery Plan. No later than [***] after completion by the Parties of all Drug Discovery Activities set forth under the applicable Drug Discovery Plan with respect to each Collaboration Target, or such earlier time mutually agreed upon by the Parties, each Party will deliver to the JSC a report summarizing all results, information, and data that were generated in connection with the performance of the Drug Discovery Activities under such Drug Discovery Plan, including information regarding any therapeutic agents that meet the development candidate criteria (each, a "**Development Candidate Report**"). Following receipt of the Development Candidate Reports, and at such earlier times that the Parties have exchanged data and results regarding any therapeutic agent that meets the development candidate criteria set forth in the applicable Drug Discovery Plan, the JSC will review and discuss such Development Candidate Reports and other data and results, and Ionis may, in its sole discretion, elect to designate one or more such therapeutic agents as Development Candidates hereunder (regardless of whether any such therapeutic agents meet the development candidate criteria).

2.2.7. **Drug Discovery Term**. On a Drug Discovery Program-by-Drug Discovery Program basis, the Drug Discovery Activities for a Drug Discovery Program will be performed by or on behalf of the Parties during the period commencing on the selection of a Collaboration Target for such Drug Discovery Program and, unless this Agreement is earlier terminated with respect to such Collaboration Target, expiring upon the earlier of (a) completion of all Drug Discovery Activities set forth in the Drug Discovery Plan for such Drug Discovery Program and presentation to the JSC of such Drug Discovery Activities, (b) the fifth anniversary of the Effective Date, and (c) selection of a Development Candidate for such Drug Discovery Program (the "**Drug Discovery Term**"); *provided* that (x) if one or more Wave 2 Targets become Collaboration Targets in accordance with Section 2.1 (Selection of Collaboration Targets) as a result of the Parties achieving Enabled Delivery for the tissue that such Wave 2 Target is delivered to and less than two years are remaining in the Drug Discovery Term for such Wave 2 Target, then clause (b) will be extended to the earlier of (i) the time that Metagenomi completes all of its activities under the applicable Drug Discovery Plan for such Wave 2 Target, and (ii), with Metagenomi's consent, not to be unreasonably withheld, delayed, or conditioned (taking into account whether it is substantially likely that a Development Candidate will be identified and designated for such Wave 2 Target during any extended Drug Discovery Term and the resources that Metagenomi will need to reasonably allocate to applicable Drug Discovery Term activities), the seventh anniversary of the Effective Date.

2.3. Exploratory Research Program.

2.3.1. **Exploratory Research Plan**. The principal Development objectives to enable improved Guide RNA, [***] delivery strategies, and any other Development activities that the JRC agrees to include pursuant to any amendment under Section 2.3.2 (Amendments to the Exploratory Research Plan) (the "**Exploratory Research Program**") will be set forth in a written plan that includes: (a) the specific activities to be performed by each Party and (b) the estimated timelines for the performance of such activities (such plan, as may be updated from time to time, the "**Exploratory Research Plan**" and the activities to be performed by the Parties thereunder, the "**Exploratory Research Activities**"). In addition, the Exploratory Research Plan will include a written budget pursuant to which Metagenomi will perform the Exploratory Research Activities allocated to Metagenomi under such Exploratory Research Plan, which budget will include (i) the number of FTEs to be dedicated by Metagenomi under the Exploratory Research Plan, and (ii) any Out-of-Pocket Costs expected to be incurred by Metagenomi in the performance of such Exploratory Research Activities on a line-item basis (the "**Exploratory Research Budget**"). The initial Exploratory Research Plan is set forth on Schedule 2.3.1 (Exploratory Research Plan).

2.3.2. **Amendments to the Exploratory Research Plan**. At least annually during the Exploratory Research Term no later than [***] of each Calendar Year, or upon either Party's request, the JRC will develop and propose updates to the Exploratory Research Plan or Exploratory Research Budget for the next fiscal year, or such other period as the Parties may mutually agree, and will submit any such proposed change to the JSC. Additionally, at any time during the Exploratory Research Term, the JRC may develop and propose *ad hoc* updates to the Exploratory Research Plan or Exploratory Research Budget

based on the then-current results and data. The JSC will review, discuss, and determine whether to approve any such proposed change to the Exploratory Research Plan or Exploratory Research Budget. Each such update to the Exploratory Research Plan or Exploratory Research Budget will become effective and will supersede the previous Exploratory Research Plan or Exploratory Research Budget upon approval thereof by the JSC.

2.3.3. **Exploratory Research Term**. The Exploratory Research Activities will be performed by or on behalf of the Parties during the period commencing on the Effective Date and, unless this Agreement is earlier terminated with respect to the Exploratory Research Program, expiring upon the earlier of (a) completion of all Exploratory Research Activities set forth in the Exploratory Research Plan, and (b) the fifth anniversary of the Effective Date (the "**Exploratory Research Term**").

2.4. **Conduct of Collaboration Activities**. Each Party, directly or through its Affiliates or, subject to Section 3.3 (Subcontractors), Subcontractors, will use Commercially Reasonable Efforts to conduct the Drug Discovery Activities and Exploratory Research Activities (collectively, the "**Collaboration Activities**") assigned to it under the applicable Drug Discovery Plan or Exploratory Research Plan (collectively, the "**Collaboration Program Plans**") and in a professional and timely manner. Each Party will, and will require its Affiliates and Subcontractors to, perform its obligations under the Collaboration Program Plans in compliance with Applicable Law.

2.5. Cost of Collaboration Activities.

2.5.1. **Reimbursement by Ionis**. Ionis will reimburse Metagenomi for all (a) Internal Costs and (b) Out-of-Pocket Costs (provided with reasonable supporting documentation), in each case ((a) and (b)), actually incurred by Metagenomi in the performance of the Exploratory Research Activities during the Exploratory Research Term to the extent in compliance with both the Exploratory Research Plan and the amounts budgeted therefor in the Exploratory Research Budget [***] (such amount, the "**Metagenomi Exploratory Research Costs**") up to $10,000,000 in the aggregate (the "**Reimbursement Cap**"). If the aggregated Metagenomi Exploratory Research Costs during the Exploratory Research Term are *less* than the Reimbursement Cap, then Ionis will also reimburse Metagenomi for all (1) Internal Costs and (2) Out-of-Pocket Costs (provided with reasonable supporting documentation), in each case ((1) and (2)), actually incurred by Metagenomi in the performance of the Drug Discovery Activities during the Exploratory Research Term to the extent in compliance with both the applicable Drug Discovery Plans and the amounts budgeted therefor in the applicable Drug Discovery Budgets [***] ("**Metagenomi Drug Discovery Costs**") up to [***]. In each Calendar Quarter during the Exploratory Research Term, unless and until Ionis' aggregated payments under this Section 2.5.1 (Reimbursement by Ionis) reach the Reimbursement Cap, Ionis will pay Metagenomi $500,000 to cover the Metagenomi Exploratory Research Costs and, if applicable, the Metagenomi Drug Discovery Costs for such Calendar Quarter (such amount, the "**Quarterly Reimbursement Payments**"), within [***] following receipt of an invoice from Metagenomi therefor. No later than [***] following the conclusion of each [***] during the Exploratory Research Term, Metagenomi will provide to Ionis a written report of all Metagenomi Exploratory Research Costs and Metagenomi Drug Discovery Costs incurred by or on behalf of Metagenomi during the applicable [***] (such reports, the "**Metagenomi Collaboration Cost Reports**"). If the amount set forth in the Metagenomi Collaboration Cost Report for a [***], then no further action is required by the Parties, except that [***]. If the amount set forth in the Metagenomi Collaboration Cost Report for [***], then [***]under this Section 2.5.1 (Reimbursement by Ionis). For clarity, Ionis will have the right to [***].

2.5.2. **Cost of Other Collaboration Activities**. Except with respect to amounts reimbursed by Ionis pursuant to Section 2.5.1 (Reimbursement by Ionis), Metagenomi will be responsible for all costs and expenses incurred by or on behalf of Metagenomi in the performance of the Collaboration Activities allocated to Metagenomi in the applicable Collaboration Program Plans, including in the performance of all Drug Discovery Activities after the expiration of the Exploratory Research Term. In addition, Ionis will be responsible for all costs and expenses incurred by or on behalf of Ionis in the performance of the Collaboration Activities allocated to Ionis in the applicable Collaboration Program Plans.

2.6. Collaboration Program Records and Reports.

2.6.1. **Records**. Each Party will maintain, or cause to be maintained, records of its Collaboration Activities in sufficient detail and in a good scientific manner appropriate for scientific, patent, and regulatory purposes, which records will reasonably reflect the work performed by such Party under each Collaboration Program Plan.

2.6.2. **Collaboration Program Reports**. During the Collaboration Term, in advance of each meeting of the JSC (unless otherwise agreed by the JSC), each Party will submit to the JSC for its review and discussion written materials that include a reasonably detailed summary of the Collaboration Activities performed by or on behalf of such Party during the most recently completed Calendar Quarter, which summary will include an estimate of the number of personnel that are performing Collaboration Activities for such Party in such Calendar Quarter (each, a "**Collaboration Program Report**").

2.7. Ionis Proprietary Toolbox of Chemical Modifications.

2.7.1. **Option Grant**. If any Ionis Proprietary Toolbox of Chemical Modifications is necessary or reasonably useful for Metagenomi to practice any Metagenomi Collaboration Technology or Joint Collaboration Technology (such Intellectual Property Rights, "**Ionis Background Technology**"), then Metagenomi will have an option to obtain the license set forth in Section 3.2.3(a) (Ionis Background Technology License Grant) to Exploit up to eight Metagenomi Products in the Field ("**Ionis IP Option**"). [***].

2.7.2. **Option Exercise**. Metagenomi may exercise an Ionis IP Option by providing written notice to Ionis ("**Option Exercise Notice**") at any time during the period commencing on [***] and ending on [***] after the expiration of the [***] of the Effective Date (the "**Option Term**"), which notice will identify one or more targets that Metagenomi proposes to designate as Metagenomi Targets to which the applicable Metagenomi Product will be directed (each, a "**Proposed Metagenomi Target**" and such notice, a "**Proposed Metagenomi Target Notice**").

2.7.3. **Encumbrance Check**.

(a) **Encumbered Targets**. Ionis will notify Metagenomi within [***] after Ionis' receipt of a Proposed Metagenomi Target Notice if, at the time of receipt of such notice, (i) [***], (ii) [***], or (iii) [***] (each of (i) through (iii), a "**Pre-Existing Ionis Restriction**" and such Proposed Metagenomi Target, an "**Encumbered Proposed Metagenomi Target**").

(b) **Effects if a Proposed Metagenomi Target is not an Encumbered Proposed Metagenomi Target**. If Ionis does not notify Metagenomi within [***] after Ionis' receipt of a Proposed Metagenomi Target Notice that the applicable Proposed Metagenomi Target is an Encumbered Proposed Metagenomi Target, then Metagenomi may provide a second notice to Ionis indicating that the Proposed Metagenomi Target will be deemed a "Metagenomi Target" if Ionis does not respond to such second notice within [***]. If Ionis (i) notifies Metagenomi that a Proposed Metagenomi Target is not an Encumbered Proposed Metagenomi Target or (ii) does not provide notice that a Proposed Metagenomi Target is an Encumbered Proposed Metagenomi Target within the original [***] period or within [***] after Metagenomi's second notice (such date, the "**Ionis IP Option Effective Date**"), then, in either case, (A) the Proposed Metagenomi Target will automatically be deemed to be a "Metagenomi Target" under this Agreement with no further action by the Parties, and (B) the license to Metagenomi under Section 3.2.3(a) (Ionis Background Technology License Grant) will be effective with respect to Metagenomi Products for such Metagenomi Target.

2.7.4. I**onis Background Technology Transfer**. On a Metagenomi Target-by-Metagenomi Target basis, no later than [***] after the Ionis IP Option Effective Date for each Metagenomi Target, Ionis will transfer to Metagenomi all Ionis Background Technology that is necessary or determined by Ionis in good faith to be reasonably useful, in each case, for Metagenomi to Exploit the applicable Metagenomi Product for such Metagenomi Target in the Field.

Article 3
Licenses; Exclusivity

3.1. License Grants to Ionis.

3.1.1. Collaboration Activities License.

(a) **Collaboration Activities License Grant**. Subject to the terms of this Agreement, Metagenomi hereby grants to Ionis and its Affiliates a non-exclusive, royalty-free license, with the right to sublicense through multiple tiers (subject to Section 3.1.1(b) (Sublicensing by Ionis)), under the Licensed Technology to perform (or have performed in accordance with this Agreement) all Collaboration Activities allocated to Ionis under each Collaboration Program Plan during the Collaboration Term.

(b) **Sublicensing by Ionis**. Ionis may grant sublicenses of any rights granted by Metagenomi under Section 3.1.1(a) (Collaboration Activities License Grant) through multiple tiers to any of its Affiliates or to one or more Subcontractors that are not [***]. Each such sublicense will be consistent with the terms of this Agreement and will require such Sublicensee to comply with all applicable terms of this Agreement. Ionis will remain responsible for its Sublicensees' compliance with the applicable terms of this Agreement.

3.1.2. Exclusive Exploitation License.

(a) **Exclusive Exploitation License Grant**. Subject to the terms of this Agreement, Metagenomi hereby grants to Ionis and its Affiliates an exclusive, royalty-bearing license, with the right to sublicense through multiple tiers (subject to Section 3.1.2(c) (Sublicensing by Ionis)), under the Licensed Technology to Exploit all Licensed Systems and Licensed Products solely in the Field in the Territory.

(b) **Limitations**. Notwithstanding the license granted to Ionis pursuant to Section 3.1.1(a) (Collaboration Activities License Grant) and Section 3.1.2(a) (Exclusive Exploitation License Grant), subject to the terms of this Agreement, Metagenomi will retain non-exclusive rights under the Licensed Technology in the Field in the Territory for the sole purpose of performing the Metagenomi Activities or fulfilling its obligations under this Agreement, in each case, either itself or through its Affiliates, or Subcontractors. For clarity, Metagenomi will retain all rights under the Licensed Technology and Licensed Systems for use outside of the Field.

(c) **Sublicensing by Ionis**. Ionis may grant sublicenses of any rights granted by Metagenomi under Section 3.1.2(a) (Exclusive Exploitation License Grant) through multiple tiers to any of its Affiliates or to one or more Sublicensees without the consent of Metagenomi; *provided* that such Sublicensees are not [***]. Each such sublicense will be consistent with the terms of this Agreement and will require such Sublicensee to comply with all applicable terms of this Agreement. Ionis will remain responsible for its Sublicensees' compliance with the applicable terms of this Agreement. Promptly following Ionis' grant of a sublicense to a Sublicensee, Ionis will notify Metagenomi of such sublicense. Upon Metagenomi's written request, Ionis will provide Metagenomi with a fully-executed copy of any agreement reflecting any such sublicense (excluding any sublicense with an Affiliate of Ionis' or any Third Party acting on Ionis' behalf), which may be reasonably redacted to exclude Ionis' proprietary information, other competitively sensitive information, or any other information not necessary for Metagenomi to verify compliance with the preceding sentence, which copy will be treated as Ionis' Confidential Information.

3.1.3. Unblocking License.

(a) **Unblocking License Grant**. Subject to the terms of this Agreement, including the license granted pursuant to Section 3.1.2(a) (Exclusive Exploitation License Grant), Metagenomi hereby grants to Ionis and its Affiliates a [***] non-exclusive license, with the right to sublicense through multiple tiers (subject to Section 3.1.3(b) (Sublicensing by Ionis)), under Metagenomi's interest in the Joint Collaboration Technology [***] in the Unblocking Field in the Territory.

(b) **Sublicensing by Ionis**. Ionis may grant sublicenses of any rights granted by Metagenomi under Section 3.1.3(a) (Unblocking License Grant) through multiple tiers to any of its Affiliates or to one or more Sublicensees to which Ionis grants a license to [***]. Each such sublicense will be consistent with the terms of this Agreement and will require such Sublicensee to comply with all applicable terms of this Agreement. Ionis will remain responsible for its Sublicensees' compliance with the applicable terms of this Agreement.

3.2. License Grants to Metagenomi.

3.2.1. Metagenomi Activities License.

(a) **Metagenomi Activities License Grant.** Subject to the terms of this Agreement, Ionis hereby grants to Metagenomi a non-exclusive, royalty-free license, with the right to sublicense through multiple tiers (subject to the provisions of Section 3.2.1(b) (Sublicensing by Metagenomi)), under the Ionis Licensed Technology solely to perform the Collaboration Activities assigned to Metagenomi under the Collaboration Program Plans (the "**Metagenomi Activities**").

(b) **Sublicensing by Metagenomi**. Metagenomi may grant sublicenses of any rights granted by Ionis under Section 3.2.1(a) (Metagenomi Activities License Grant) through multiple tiers to any of its Affiliates or to one or more Subcontractors that are not [***]. Each such sublicense will be consistent with the terms of this Agreement and will require such Sublicensee to comply with all applicable terms of this Agreement. Metagenomi will remain responsible for each Sublicensee's compliance with the applicable terms of this Agreement.

3.2.2. Unblocking License.

(a) **Unblocking License Grant**. Subject to the terms of this Agreement, Ionis hereby grants to Metagenomi and its Affiliates a [***] non-exclusive license, with the right to sublicense through multiple tiers (subject to Section 3.2.2(b) (Sublicensing by Metagenomi)), under Ionis' interest in the Joint Collaboration Technology [***] in the Unblocking Field in the Territory.

(b) **Sublicensing by Metagenomi**. Metagenomi may grant sublicenses of any rights granted by Ionis under Section 3.2.2(a) (Unblocking License Grant) through multiple tiers to any of its Affiliates or to one or more Sublicensees to which Metagenomi grants a license to [***]. Each such sublicense will be consistent with the terms of this Agreement and will require such Sublicensee to comply with all applicable terms of this Agreement. Metagenomi will remain responsible for its Sublicensees' compliance with the applicable terms of this Agreement.

3.2.3. Ionis Background Technology License.

(a) **Ionis Background Technology License Grant**. Subject to Section 2.7 (Ionis Proprietary Toolbox of Chemical Modifications), effective upon the Ionis IP Option Effective Date for a Metagenomi Target, Ionis hereby grants to Metagenomi a non-exclusive, royalty-bearing license with the right to grant sublicenses through multiple tiers (subject to Section 3.2.3(b) (Sublicensing by Metagenomi)) under the Ionis Background Technology solely to Exploit Metagenomi Products for such Metagenomi Target in the Field.

(b) **Sublicensing by Metagenomi**. Metagenomi may grant sublicenses of any rights granted by Ionis under Section 3.2.3(a) (Ionis Background Technology License Grant) through multiple tiers to any of its Affiliates or to one or more Sublicensees to which Metagenomi grants a license to Exploit the Metagenomi Products; *provided* that such Sublicensees are not [***]. Each such sublicense will be consistent with the terms of this Agreement and will require such Sublicensee to comply with all applicable terms of this Agreement. Metagenomi will remain

responsible for its Sublicensees' compliance with the applicable terms of this Agreement. Promptly following Metagenomi's grant of a sublicense to a Sublicensee, Metagenomi will notify Ionis of such sublicense. Upon Ionis' written request, Metagenomi will provide Ionis with a fully-executed copy of any agreement reflecting any such sublicense (excluding any sublicense with an Affiliate of Metagenomi), which may be reasonably redacted to exclude Metagenomi's proprietary information, other competitively sensitive information, or any other information not necessary for Ionis to verify compliance with the preceding sentence, which copy will be treated as Metagenomi's Confidential Information.

3.3. **Subcontractors.** Each Party and its Affiliates may perform any of its obligations under this Agreement through one or more Subcontractors; *provided* that (a) neither Party nor its Affiliates will engage any subcontractor that has been debarred by any Regulatory Authority; (b) the subcontracting Party remains fully responsible for the work allocated to, and payment to, such subcontractors to the same extent it would if it had done such work itself; (c) the subcontractor undertakes in writing obligations of confidentiality and non-use applicable to the Confidential Information that are at least as stringent as those set forth in Article 11 (Confidentiality) other than the term of any such confidentiality obligation, which will be customary for the nature of the Subcontractor; (d) require such Subcontractor and its personnel to assign (or, if such Party, after using Commercially Reasonable Efforts, cannot obtain an assignment, then to grant a perpetual license) to such Party of all rights, title, and interests in and to any Patent Rights or Know-How created, conceived, or developed in connection with the performance of subcontracted activities; *provided* that such Subcontractor and its personnel will not be required to assign its rights, title, and interests to any of its background intellectual property or improvements thereto; (e) the subcontracting Party will be liable for any act or omission of any Subcontractor that is a breach of any of the subcontracting Party's obligations under this Agreement as though the same were a breach by the subcontracting Party; (f) each Party will use good faith efforts to identify in writing to the other Party any Subcontractor that it engages to perform Collaboration Activities and will only engage Subcontractors to perform the Collaboration Activities to the extent and in a manner consistent with such Party's engagement of subcontractors for other internal Development programs; (g) Ionis [***]; and (h) Metagenomi [***].

3.4. **Technology Transfer.**

3.4.1. **Initial Transfers**. On a Collaboration Target-by-Collaboration Target basis, no later than (a) for [***] after the Effective Date and (b) for each new Collaboration Target, [***] after the applicable target becomes a Collaboration Target pursuant to Section 2.1.1(b) (Second Wave 1 Target) or Section 2.1.4(c) (Effects if a Proposed Target is Available), each Party will transfer to the other Party all Ionis Licensed Technology or Licensed Technology (as applicable), with respect to [***], as of the Effective Date, or, with respect to Collaboration Targets that become such after the Effective Date, at the time that a target becomes a Collaboration Target, in each case, that is [***] to perform the activities allocated to the non-transferring Party under the Drug Discovery Plan for the applicable Collaboration Target. In addition, each Party will transfer to the other Party all Ionis Licensed Technology or Licensed Technology (as applicable) that is [***] for the non-transferring Party to perform the activities allocated to the non-transferring Party under the Exploratory Research Plan no later than [***] after the Effective Date.

3.4.2. **Additional Transfers**. Following the initial transfers described in Section 3.4.1 (Initial Transfers), (a) promptly after [***] and (b) [***], Metagenomi will provide prompt updates to Ionis regarding any Licensed Know-How not previously transferred to Ionis that is [***] for Ionis to continue Exploiting the Licensed Systems and Licensed Products, in each case, that relate to the Development Candidates being Exploited, or that Ionis, at such time, intends to Exploit, under this Agreement. During the Term, as reasonably requested by Ionis, Metagenomi will promptly provide Ionis with any information specifically identified by Ionis and included in the Licensed Technology that is [***] for Ionis to Exploit the Licensed Systems or Licensed Products that relate to the Development Candidates being Exploited, or that Ionis, at such time, intends to Exploit, and has not previously been transferred to Ionis under this Agreement. Metagenomi will provide such information to Ionis within [***] after Ionis' request.

3.4.3. **Assistance by Metagenomi Personnel**. To assist with the transfer of Licensed Know-How under this Section 3.4 (Technology Transfer) and Ionis' Exploitation thereof in accordance with the terms of this Agreement during the Term, Metagenomi will make its personnel reasonably available to Ionis during normal business hours to transfer such Licensed Know-How to Ionis and respond to Ionis' reasonable inquiries with respect thereto.

3.4.4. **Costs of Support**. On a Collaboration Program-by-Collaboration Program basis, Metagenomi will provide the first [***] FTE hours of technology transfer, or technical or regulatory assistance under this Section 3.4 (Technology Transfer), Section 7.2.2 (Assistance; Support) and Section 7.3 (Regulatory Support) for a Collaboration Program at Metagenomi's cost and expense. On a Collaboration Program-by-Collaboration Program basis, for any such assistance in excess of [***] FTE hours for a Collaboration Program, Ionis will reimburse Metagenomi for its reasonable, documented Internal Costs with respect thereto within [***] of receipt of a reasonably detailed invoice therefor.

3.5. **No Implied Licenses**. Except as expressly provided in this Agreement, neither Party will be deemed to have granted the other Party any license or other right with respect to any Intellectual Property Rights of such Party.

3.6. **Exclusivity**.

3.6.1. **Exclusivity Obligations**. Subject to Section 3.6.2 (Acquisition of Distracting Product) and Section 3.6.3 (Change of Control), except in the performance of its obligations or exercise of its rights under this Agreement, neither Party nor any of its Affiliates will work independently or for or with any Third Party (including the grant of any license to any Third Party) to:

(a) on a Drug Discovery Program-by-Drug Discovery Program basis, (i) during the Drug Discovery Term for a Drug Discovery Program, Develop or Commercialize any product that targets the Collaboration Target in the Exclusivity Field, and (ii) until the earlier of the (1) [***] period after the expiration of the Drug Discovery Term for a Drug Discovery Program or (2) [***] period after the Effective Date, clinically Develop or Commercialize any product that targets a Collaboration Target in the Exclusivity Field that is actively being Developed by Ionis under this Agreement for such Drug Discovery Program; and

(b) on a Co-Co Program-by-Co-Co Program basis, during the period commencing on the date [***] and expiring [***], Develop or Commercialize any product that targets the Collaboration Target for such Co-Co Program in the Exclusivity Field. For clarity, the limitations set forth in this Section 3.6.1 (Exclusivity Obligations) will not apply to any Collaboration Target that is substituted out in accordance with Section 2.1.3 (Target Substitutions).

3.6.2. **Acquisition of Distracting Product**. Notwithstanding the provisions of Section 3.6.1 (Exclusivity Obligations), if a Party or any of its Affiliates (such Party, the "**Distracted Party**") acquires rights to Develop or Commercialize a product in the Field as the result of a merger, acquisition, or combination with or of a Third Party (where such Party is not the acquired entity) other than a Change of Control (each, an "**Acquisition Transaction**") and, on the date of the closing of such Acquisition Transaction, such product is being Developed or Commercialized and such activities would, but for the provisions of this Section 3.6.2 (Acquisition of Distracting Product), constitute a breach of Section 3.6.1 (Exclusivity Obligations) (such product, a "**Distracting Product**"), then the Distracted Party or such Affiliate will, within [***] after the closing of such Acquisition Transaction notify the other Party in writing of such acquisition and either:

(a) request that such Distracting Product be included in this Agreement on terms to be negotiated, in which case, the Parties will discuss the matter in good faith for a period of no less than [***] and, if the Parties are unable to reach agreement on the terms on which such Distracting Product would be included hereunder within such period, then the Distracted Party will elect to take the action specified in either Section 3.6.2(b) or Section 3.6.2(c) below; *provided* that the time periods specified in such clauses will be tolled for so long as the Parties are engaged in good faith discussion under this Section 3.6.2(a);

(b) notify the other Party in writing that the Distracted Party or its Affiliate will [***], in which case, within [***] after the closing of the Acquisition Transaction, the Distracted Party or its Affiliate will [***]; or

(c) notify the other Party in writing that it [***], in which case, within [***] after the other Party's receipt of such notice, the Distracted Party and its Affiliates will [***].

During the discussion period under Section 3.6.2(a), prior to the time of [***] to Section 3.6.2(b), or prior to the [***] pursuant to Section 3.6.2(c), as applicable, the Distracted Party and its Affiliates will segregate all activities relating to the Distracting Product from the Exploitation of the Licensed Systems or Licensed Products under this Agreement, including ensuring that (i) no personnel involved in performing Development or Commercialization activities with respect to such Distracting Product have access to non-public plans or information relating to the Development or Commercialization of Licensed Systems or Licensed Products under this Agreement (except that [***]), and (ii) no personnel involved in performing Development or Commercialization activities with respect to Licensed Systems or Licensed Products under this Agreement have access to non-public plans or information relating to the Development or Commercialization of such Distracting Product (except that [***]). The procedures set forth in clauses (i) and (ii) above will be referred to as "**Firewall Procedures**" for the purposes of this Agreement.

3.6.3. **Change of Control**. If there is a Change of Control involving a Party (where such Party is the acquired entity), then:

(a) the obligations of Section 3.6.1 (Exclusivity Obligations) will not apply to any product that is controlled by the relevant acquirer or its Affiliates and that exists prior to the closing of such Change of Control; provided that (i) the acquired Party and the acquirer and its Affiliates existing immediately prior to the effective date of such Change of Control [***], (ii) the acquirer and its Affiliates existing immediately prior to the effective date of such Change of Control [***], and (iii) no personnel who were employees or consultants of the acquired Party or its Affiliates at any time prior to or after the Change of Control will [***];

(b) if Ionis is the acquired entity and the acquiring entity is a [***], then Ionis will ensure that the acquiring entity establishes and implements Firewall Procedures to segregate and protect Confidential Information related to the Licensed Systems and Licensed Products from access to or use by the acquiring party other than as permitted by this Agreement; and

(c) if Metagenomi is the acquired entity and the acquiring entity is an [***], then Metagenomi will ensure that the acquiring entity establishes and implements Firewall Procedures to segregate and protect Confidential Information related to the Licensed Systems, Licensed Products, and Ionis Background Technology from access to or use by the acquiring party other than as permitted by this Agreement.

Article 4
Governance

4.1. **Joint Steering Committee.**

4.1.1. **Formation and Purpose of the JSC**. Promptly, but no later than [***] after the Effective Date, the Parties will establish a Joint Steering Committee ("**JSC**"), which JSC will coordinate, oversee, and monitor the Parties' activities hereunder in accordance with this Section 4.1 (Joint Steering Committee). The JSC will have the responsibilities set forth herein and will have no further responsibilities (a) with respect to the Exploratory Research Program, upon the expiration of the Exploratory Research Term, and (b) with respect to any Drug Discovery Program, upon the expiration of the Drug Discovery Term for such Drug Discovery Program. Upon the latest to occur of (a)-(b), the JSC will be dissolved.

4.1.2. **Membership**. Each Party will designate [***] representatives with appropriate expertise and seniority to serve as members of the JSC, and who have the authority to bind such Party with respect to matters within the purview of the JSC. Each Party may replace its JSC representatives at any time upon written notice to the other Party. Metagenomi will designate one of its JSC members as one of the co-chairpersons of the JSC and Ionis will designate one of its members as the other co-chairperson of the JSC. Every [***] the co-chairpersons will alternate serving in the role of "lead co-chairperson." The lead co-chairperson or his or her designee, in collaboration with the Alliance Managers, will be responsible for calling meetings, preparing and circulating an agenda in advance of each meeting, and preparing and issuing minutes of each meeting within [***]thereafter. Such minutes will be deemed finalized unless any JSC member objects to the accuracy of such minutes no later than [***] after receipt of such minutes.

4.1.3. **Meetings**. The JSC will meet in person, by videoconference, or by teleconference at least once each [***], unless otherwise agreed by the Parties, on such dates and at such times and places as agreed to by the members of the JSC. The Alliance Manager of each Party will attend each meeting of the JSC as a non-voting participant. Each Party will be responsible for all of its own expenses in participating in any JSC meeting.

4.1.4. **Meeting Agendas**. Each Party will disclose to the other Party the proposed agenda items at least [***] in advance of each meeting of the JSC. Notwithstanding the foregoing, under exigent circumstances requiring JSC input, a Party may provide its agenda items to the other Party within a lesser period of time in advance of the meeting, or may propose that there not be a specific agenda for a particular meeting, so long as such other Party consents to such later addition of such agenda items or the absence of a specific agenda for such JSC meeting.

4.1.5. **Specific Responsibilities of the JSC**. The responsibilities of the JSC will be to:

(a) oversee the overall strategic relationship between the Parties;

(b) review, discuss, and determine whether it is technologically infeasible to Develop a Development Candidate for a given Collaboration Target, as described in Section 2.1.3(b) (Substitutions for Technological Infeasibility);

(c) review, discuss, and determine whether to approve each Drug Discovery Plan, and any updates thereto, pursuant to Section 2.2.2 (Additional Drug Discovery Plans) and Section 2.2.3 (Amendments to the Drug Discovery Plans);

(d) discuss and determine the [***] for the Second Wave 1 Target and each Proposed Target that is deemed a Collaboration Target under this Agreement pursuant to Section 2.1.4(c) (Effects if a Proposed Target is Available), as described in Section 2.2.4(b) (Selection of Gene Editing Modalities);

(e) review and discuss each Development Candidate Report and any other data or results provided by Metagenomi regarding therapeutic agents that meet the development candidate criteria set forth in a Drug Discovery Plan, pursuant to Section 2.2.6 (Delivery of Development Candidate; Development Candidate Report);

(f) review, discuss, and determine whether to approve any updates to the Exploratory Research Plan or Exploratory Research Budget, pursuant to Section 2.3.2 (Amendments to the Exploratory Research Plan);

(g) review and discuss each Collaboration Program Report, pursuant to Section 2.6.2 (Collaboration Program Reports);

(h) review and discuss the Regulatory Strategy for each Licensed Product, as described in Section 7.1 (Regulatory Responsibility);

(i) coordinate the wind-down of any Terminated Products in the Terminated Countries to the extent the JSC is still in effect at the time of the applicable termination notice, pursuant to Section 14.3.1 (Wind-Down); and

(j) perform such other functions as appropriate to further the purposes of this Agreement as determined by the Parties.

4.2. **Subcommittees** . From time to time, the JSC may establish and delegate duties, including any responsibilities of the JSC set forth in Section 4.1.5 (Specific Responsibilities of the JSC), to operational subcommittees (each, a "**Subcommittee**") on an "as-needed" basis to oversee particular projects or activities, which delegations will be reflected in the minutes of the meetings of the JSC. Such Subcommittees may be established on an *ad hoc* basis for purposes of a specific project, for the life of a Licensed Product, or on such other basis as the JSC may determine, and will be constituted and will operate as the JSC may determine; *provided* that each Subcommittee will have equal representation from each Party and decision making will be by consensus, with each Party's representatives on the applicable Subcommittee collectively having one vote on all matters brought before the Subcommittee. Each Subcommittee and its activities will be subject to the direction, review, and approval of, and, unless otherwise determined by the JSC, will report to, the JSC. For each Subcommittee, Ionis will designate one of its Subcommittee members to serve as the chairperson of such Subcommittee. The chairperson or his or her designee, in collaboration with the Alliance Managers, will be responsible for calling meetings, preparing and circulating an agenda in advance of each meeting, and preparing and issuing minutes of each meeting within [***] thereafter. Such minutes will not be finalized until all Subcommittee members have had an adequate opportunity to review and confirm the accuracy of such minutes. Each Party may replace its representatives on each such Subcommittee at any time upon written notice to the other Party. The Alliance Manager of each Party (or his or her designee) will attend each meeting of each Subcommittee as a non-voting participant. Each Subcommittee and its activities will be subject to the oversight of, and will report to, the JSC. Any disagreement between the representatives of the Parties on a Subcommittee will be referred to the JSC for resolution in accordance with Section 4.6 (Decision-Making).

4.3. **Joint Research Committee**

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4.3.1. **Formation and Purpose of the JRC**. Promptly, but no later than [***] after the creation of the JSC, the Parties will establish a Joint Research Committee ("**JRC**"), which JRC will coordinate, oversee, and monitor the Parties' research activities hereunder in accordance with this Section 4.3 (Joint Research Committee). The JRC will be deemed a "Subcommittee" as described in Section 4.2 (Subcommittees). The JRC will have the responsibilities set forth herein and will dissolve upon the earlier of (a) the dissolution of the JSC, (b) the expiration of the Collaboration Term, or (c) by mutual agreement between the Parties.

4.3.2. **Membership**. Each Party will designate [***] representatives with appropriate expertise and seniority to serve as members of the JRC, and who have the authority to bind such Party with respect to matters within the purview of the JRC.

4.3.3. **Specific Responsibilities of the JRC**. The responsibilities of the JRC will be to:

(a) coordinate the Collaboration Activities;

(b) develop, discuss, and submit to the JSC to further review, discuss, and determine whether to approve each Drug Discovery Plan, and any updates thereto, pursuant to Section 2.2.2 (Additional Drug Discovery Plans) and Section 2.2.3 (Amendments to the Drug Discovery Plans);

(c) develop, discuss, and submit to the JSC to further review, discuss, and determine whether to approve any updates to the Exploratory Research Plan or Exploratory Research Budget, pursuant to Section 2.3.2 (Amendments to the Exploratory Research Plan); and

(d) perform such other functions as determined by the JSC.

4.4. **Alliance Managers** . Each of the Parties will appoint a single individual to coordinate communications regarding the activities under this Agreement (each, an "**Alliance Manager**"). The role of the Alliance Manager is to act as a single point of contact between the Parties to ensure a successful relationship under this Agreement. The Alliance Managers will attend any JSC meetings. Alliance Managers will be non-voting participants in all JSC meetings that they attend; *provided*, *however*, that an Alliance Manager may bring any matter to the attention of the JSC if such Alliance Manager reasonably believes that such matter warrants such attention. Each Party will designate its initial Alliance Manager promptly after the Effective Date and each Party may change its designated Alliance Manager at any time upon written notice to the other Party. Any Alliance Manager may designate a substitute to temporarily perform the functions of that Alliance Manager by written notice to the other Party. Each Alliance Manager may also: (a) be the point of first referral in all matters of conflict resolution; (b) provide a single point of communication for seeking consensus between the Parties regarding key strategy and plan issues; (c) identify and bring disputes to the attention of the JSC in a timely manner; and (d) plan and coordinate cooperative efforts.

4.5. **Additional Participants**. Other employees of either Party or any of its Affiliates may attend meetings of the JSC or any Subcommittees as non-voting participants with prior written notice to the other Party (including via email notification). In addition, with the consent of each Party, consultants, representatives, or advisors may attend meetings of the JSC or any Subcommittees as non-voting observers; *provided*, *however*, that such Third Party participants and observers are under written obligations of confidentiality and non-use applicable to the Confidential Information of each Party that are at least as stringent as those set forth in Article 11 (Confidentiality).

4.6. **Decision-Making**.

4.6.1. **Committee Decisions**. Each Party's representatives on the JSC will, collectively, have one vote (the "**Party Vote**") on all matters brought before such committee for a decision by consensus. The JSC will make decisions as to matters within its jurisdiction by unanimous Party Vote, which Party Vote will be reflected in the minutes of the committee meeting. No vote will be binding on either Party unless each Party has at least one representative in attendance.

4.6.2. **Scope of Committee Authority**. For the avoidance of doubt, matters that are specified in this Article 4 (Governance) only to be reviewed and discussed (as opposed to reviewed, discussed, and approved) do not require any agreement or decision by either Party and are not subject to the voting and decision-making procedures set forth in this Section 4.6 (Decision-Making).

4.6.3. **Escalation**. If the representatives of Metagenomi and Ionis are unable to agree on or resolve any matter requiring the approval of the JSC after the use of good faith efforts, within [***] after the JSC first considers such matter then, at the election of either Party, such Party may refer such matter to the Party's respective Executive Officer. The Executive Officers will use good faith efforts to resolve any such disagreement so referred to them as soon as practicable, and any final decision that the Executive Officers agree to in writing will be conclusive and binding on the Parties. If the Executive Officers are unable to resolve any such disagreement so referred to them within [***] following such referral (or such longer period as the Executive Officers may agree upon), then:

(a) **Ionis Final Decision-Making Authority**. Ionis will have the right to make the final decision regarding [***].

(b) **Resolution by Baseball Arbitration**. Except for those matters set forth in Section 4.6.3(a) (Ionis Final Decision-Making Authority), either Party may refer the matter for resolution pursuant to Section 15.1.3 (Expedited Dispute Resolution).

4.6.4. **General Authority**. The JSC and any Subcommittees will have solely the powers expressly assigned to them in this Article 4 (Governance) and elsewhere in this Agreement. In conducting themselves on the JSC, any Subcommittees, and as Alliance Managers, and in exercising their rights under this Article 4 (Governance), all representatives of each Party will consider diligently, reasonably, and in good faith all input received from the other Party, and will use good faith efforts to reach unanimity, where required, on all matters before them. Notwithstanding anything to the contrary set forth in this Agreement, the JSC, and any Subcommittees will not have the right to make any decisions: (a) to amend, modify, or waive compliance with any term or condition of this Agreement; (b) in a manner that negates any consent right or other right specifically allocated to a Party under this Agreement; (c) to resolve any dispute involving the breach or alleged breach of this Agreement; (d) to resolve a matter if the provisions of this Agreement specify that agreement of the Parties, including consent of each Party, is required for such matter; (e) in a manner that a Party reasonably believes would require it to perform any act that would cause such Party to violate any Applicable Law or the requirements of any Regulatory Authority, or otherwise breach any of its obligations hereunder; or (f) that otherwise expand the rights or reduce the obligations of either Party under this Agreement.

Article 5
Co-Development and Co-Commercialization Options

5.1. **Co-Development and Co-Commercialization Options**.

5.1.1. **Option Grant**. Ionis hereby grants to Metagenomi the exclusive option to co-Develop and co-Commercialize with Ionis the Licensed Products under a Drug Discovery Program (a "**Co-Co Option**"), which Co-Co Option may be exercised for (a) [***], (b) no more than one of the other three Drug Discovery Programs for the Wave 1 Targets, and (c) no more than two Drug Discovery Programs for the Wave 2 Targets that become Collaboration Targets.

5.1.2. **Option Period**. On a Drug Discovery Program-by-Drug Discovery Program basis, Metagenomi may exercise a Co-Co Option for a Drug Discovery Program by delivering written notice to Ionis of such exercise at any time during the [***] after the selection of [***] for such Drug Discovery Program (such notice, the "**Co-Co Option Notice**", and such [***], the "**Co-Co Option Period**"). Notwithstanding the foregoing, Metagenomi may terminate the Co-Co Option Period for a Drug Discovery Program early by providing written notice to Ionis at any time during such [***] that Metagenomi does not elect to exercise its Co-Co Option for such Drug Discovery Program and, upon Ionis' receipt of any such written notice the Co-Co Option Period for such Drug Discovery Program, the Co-Co Option Period for such Drug Discovery Program will be deemed to have expired

and Metagenomi may not thereafter exercise the Co-Co Option for such Drug Discovery Program. No more than [***] at Metagenomi's request during the Co-Co Option Period for a Drug Discovery Program, Ionis will provide Metagenomi with [***] ("**Option Package**"). For clarity, Ionis will not be required to generate any additional data or information that is not in existence as of the date of Metagenomi's request for an Option Package.

5.1.3. **Option Exercise**. If Metagenomi decides to exercise the Co-Co Option for a particular Drug Discovery Program, then it will deliver written notice to Ionis of such determination during the applicable Co-Co Option Period, which notice will indicate the Drug Discovery Program for which Metagenomi elects to exercise the Co-Co Option, and (a) the Drug Discovery Program for which Metagenomi is exercising its Co-Co Option will automatically be deemed a "Co-Co Program" and all Licensed Products under such Drug Discovery Program will automatically be deemed "Co-Co Products," (b) Metagenomi will pay Ionis the Option Exercise Fee for such Co-Co Program pursuant to Section 9.3 (Option Exercise Fee), and (c) the Parties will enter into a Co-Development and Co-Commercialization Agreement for such Co-Co Program in accordance with Section 5.2 (Development and Commercialization of the Co-Co Products; Opt-Down Right). Any Drug Discovery Program for which Metagenomi does not exercise a Co-Co Option prior to the expiration of the applicable Co-Co Option Period will automatically be deemed an "Ionis Program" and all Licensed Products under such Drug Discovery Program will automatically be deemed "Ionis Products" and Ionis will have sole control under the Development and Commercialization of such Ionis Products in accordance with Article 6 (Development and Commercialization of the Ionis Products).

5.2. **Development and Commercialization of the Co-Co Products; Opt-Down Right** . On a Co-Co Program-by-Co-Co Program basis, promptly after Metagenomi exercises a Co-Co Option for a Co-Co Program, the Parties will negotiate in good faith the terms of a worldwide, co-exclusive (with Ionis) co-Development and co-Commercialization agreement (the "**Co-Development and Co-Commercialization Agreement**"), which terms and conditions will be reasonable and customary for agreements of this type and will include a requirement that the Parties share all future Development, Commercialization, and other Exploitation costs and all future profits with respect to the applicable Co-Co Products, with the Parties bearing the share of such costs 50:50 and Ionis being responsible for booking and recording revenue and on terms to be specified in the Co-Development and Co-Commercialization Agreement; *provided*, that [***]. Each Co-Development and Co-Commercialization Agreement will include: (i) the right for Metagenomi to, upon written notice to Ionis, reduce its share of any costs borne under the applicable Co-Co Program from 50% to any percentage between 50% and 25% and Ionis' share of such costs will increase accordingly (such option, the "**Opt-Down Right**"); *provided* that Metagenomi will continue to bear 50% of the costs of any then-ongoing Clinical Trials through the completion of any such ongoing Clinical Trials, (ii) each Party will receive a share of profits equal to the percentage of costs funded by such Party following the exercise of the Opt-Down Right based on the percentage of costs that Metagenomi commits to funding in its notice of exercise of its Opt- Down Right, and (iii) Metagenomi may only exercise the Opt-Down Right during the period beginning no earlier than [***] and no later than [***] prior to the [***]. Until the Parties execute the Co-Development and Co-Commercialization Agreement, Ionis will continue to conduct and will be solely responsible for, and continue to have sole and exclusive control over, the Development and Manufacture of the applicable Co-Co Products.

5.3. **Escalation Procedure**. If the Parties, despite their good faith negotiations, are unable to agree on the terms and conditions of any Co-Development and Co-Commercialization Agreement within [***] of the date of the applicable Co-Co Option Notice (or such longer time as mutually agreed by the Parties), then either Party may refer those terms and conditions to which they have not mutually agreed to the Executive Officers, who will use reasonable efforts to reach agreement on such terms and conditions. If such Executive Officers are unable to reach consensus with respect to such terms and conditions within [***] after such referral, then either Party may notify the other Party of its intent to invoke dispute resolution under Section 15.1.3 (Expedited Dispute Resolution).

5.4. **Metagenomi Opt-Out**. On a Co-Co Program-by-Co-Co Program basis, Metagenomi will have the right to opt-out of its rights and obligations under this Agreement to the extent related to the Exploitation of the Co-Co Products under such Co-Co Program and the applicable Co-Development and Co-Commercialization Agreement for a Co-Co Program (each such right, an "**Opt-Out Right**"). Metagenomi may exercise the Opt-Out Right for a Co-Co Program by providing written notice to Ionis of such election no later than [***] after [***] (the "**Opt-Out Period**"). If Metagenomi exercises the Opt-Out Right for a Co-Co Program during the applicable Opt-Out Period pursuant to this Section 5.4 (Metagenomi Opt-Out), then from and after the date that is the later of (a) [***] following the date on which [***] or (b) [***] (the "**Opt-Out Date**"), (i) the applicable Co-Development and Co-Commercialization Agreement will terminate and Ionis will have sole control over, and sole decision-making authority with respect to, at its cost and expense, the Development, Commercialization, and other Exploitation of the Licensed Products under such Drug Discovery Program, (ii) the Licensed Products under such Drug Discovery Program will be deemed to be "Ionis Products" and such Drug Discovery Program will be deemed to be an "Ionis Program", in each case, from and after the Opt-Out Date, (iii) Ionis will thereafter pay any Ionis Product Development Milestone Payments, Ionis Product Regulatory Milestone Payments, Ionis Product Sales Milestone Payments, and Ionis Royalties, in each case, that accrue as a result of the Exploitation of the applicable Ionis Products from and after the Opt-Out Date (*provided* that Ionis will not be required to pay the first Ionis Product Development Milestone Payment, Ionis Product Regulatory Milestone Payment, or Ionis Product Sales Milestone Payment, as applicable, to accrue as a result of the Exploitation of the applicable Ionis Products after the Opt-Out Date), (iv) Ionis will not be responsible for any Ionis Product Development Milestone Payments, Ionis Product Regulatory Milestone Payments, or Ionis Product Sales Milestone Payments that accrued prior to the Opt-Out Date, and (v) Metagenomi will continue to bear its share of the costs of any Clinical Trials for the applicable Ionis Products that are ongoing as of the Opt-Out Date through the completion of such Clinical Trials.

Article 6
Development and Commercialization of the Ionis Products

6.1. **Development**.

6.1.1. **General**. On an Ionis Program-by-Ionis Program basis, from and after expiration of the Drug Discovery Term for an Ionis Product, Ionis will have sole control over, and sole decision-making authority with respect to, at its cost and expense, the Development of, and the performance of all Medical Affairs with respect to, such Ionis Product in the Field in the Territory.

6.1.2. **Reporting for the Ionis Products**. On an Ionis Program-by-Ionis Program basis, during the period after [***], [***] per [***], Ionis will provide Metagenomi with a reasonably detailed report regarding the status of Ionis' Development of the Ionis Products for such Ionis Program. At Metagenomi's reasonable request, no more than [***] per [***], the Parties will meet to discuss the Development of the Ionis Products.

6.1.3. **Development Diligence for the Ionis Products**. Ionis (acting directly or through one or more Affiliates or Sublicensees) will use Commercially Reasonable Efforts to Develop and seek Regulatory Approval for at least [***] in [***].

6.2. **Commercialization.**

6.2.1. **General**. Ionis will have sole control over, and sole decision-making authority with respect to, at its cost and expense, the Commercialization of the Ionis Products in the Field in the Territory.

6.2.2. **Commercialization Diligence for the Ionis Products.** Following receipt by or on behalf of Ionis of Regulatory Approval for an Ionis Product in a country, Ionis (acting directly or through one or more Affiliates or Sublicensees) will use Commercially Reasonable Efforts to Commercialize such Ionis Product in such country.

Article 7
Regulatory Affairs

7.1. **Regulatory Responsibility.** From and after the Effective Date, as between the Parties, Ionis will be responsible for the preparation and submission of all Regulatory Submissions (including all meetings with Regulatory Authorities in connection with the same) for all Licensed Products, but, for clarity, not including Regulatory Submissions that relate to proprietary Metagenomi components of Licensed Products to which Ionis will have a right of reference pursuant to Section 7.2 (Right of Reference), **[***];** *provided* that Metagenomi will assist Ionis or any of its Affiliates or Sublicensees in its efforts to prepare and submit any such Regulatory Submissions in accordance with this Article 7 (Regulatory Affairs). Ionis or any of its Affiliates or Sublicensees may file all such applications in its own name (or in the name of its designee) and will own and control all such applications. On a Drug Discovery Program-by-Drug Discovery Program basis, at Ionis' request at any time after a Development Candidate is selected for a Drug Discovery Program, the JSC will discuss a high-level regulatory strategy for such Drug Discovery Program ("**Regulatory Strategy**"), which strategy will leverage Metagenomi's expertise with Regulatory Submissions for products that are similar to the Licensed Product. For clarity, the JSC will not have any approval rights with respect to the Regulatory Strategy for any Drug Discovery Program and Ionis will have sole control over, and sole decision-making authority with respect to, the Regulatory Submissions for the Licensed Products. Notwithstanding the foregoing, if Metagenomi exercises the Co-Co Option for one or more Drug Discovery Programs in accordance with Section 5.1 (Co-Development and Co-Commercialization Options), then all Regulatory Submissions with respect to any Co-Co Product will be prepared in accordance with the terms set forth in the applicable Co-Development and Co-Commercialization Agreement.

7.2. **Right of Reference.**

7.2.1. **Grant.** Metagenomi will grant, and hereby does grant, to Ionis and its Affiliates and Sublicensees a "Right of Reference," as that term is defined in 21 C.F.R. § 314.3(b) (or any successor rule or analogous Applicable Law recognized outside of the United States), to all Regulatory Submissions (including any drug master files) submitted by or on behalf of and Controlled by Metagenomi or any of its Affiliates that are necessary or reasonably useful to support any Regulatory Submissions for a Licensed Product to be made by Ionis, its Affiliates, or Sublicensees in the Field in the Territory.

7.2.2. **Assistance; Cooperation.** Ionis and its Affiliates and Sublicensees may use such right of reference solely for the purpose of seeking, obtaining, supporting, and maintaining Regulatory Approval for the Licensed Products in the Field in the Territory. Metagenomi will use Commercially Reasonable Efforts to take such actions as may be reasonably requested by Ionis to give effect to the intent of this Section 7.2 (Right of Reference), including, if requested by Ionis, (a) providing a signed statement that Ionis may rely on, and that the applicable Regulatory Authority may access, Metagenomi or its Affiliate's Regulatory Submissions in support of Ionis' application for Regulatory Approval for any Licensed Product, and (b) subject to the data sharing requirements under any privacy- related Applicable Law, providing Ionis with any underlying raw data or information submitted by Metagenomi or its Affiliates to the Regulatory Authority with respect to the applicable Regulatory Submissions. Internal Costs incurred by Metagenomi in performing any activities requested by Ionis pursuant to this Section 7.2.2 (Assistance; Cooperation) will be reimbursed in accordance with Section 3.4.4 (Costs of Support).

7.3. **Regulatory Support.**

7.3.1. **Access to Data.** Metagenomi will use Commercially Reasonable Efforts to assist Ionis or any of its Affiliates or Sublicensees in its efforts to prepare and submit any Regulatory Submissions to obtain, support, or maintain Regulatory Approvals for all Licensed Products in the Field in the Territory, including by providing Ionis with all data, written reports, and other documentation generated by or on behalf of Metagenomi under the Drug Discovery Programs that is necessary or reasonably useful to support any Regulatory Submissions for a Licensed Product, as well as any necessary samples and materials. Unless otherwise noted in the Development Supply Agreement or the Commercial Supply Agreement, the costs of Metagenomi providing such support will be reimbursed in accordance with Section 3.4.4 (Costs of Support).

7.3.2. **Review of Regulatory Submissions.** Ionis may (but, for clarity, is not required to) provide drafts of any INDs or other Regulatory Submissions for the Licensed Products to Metagenomi prior to submission to the applicable Regulatory Authority for Metagenomi to review and provide comments. Metagenomi will use Commercially Reasonable Efforts to review and provide any such requested comments in a timely manner and the costs of such support will be reimbursed in accordance with Section 3.4.4 (Costs of Support).

Article 8
Manufacturing

8.1. **Metagenomi Manufacturing Responsibilities.**

8.1.1. **Metagenomi Supply Term.** Subject to Section 8.4 (Ionis' Assumption of Manufacturing Responsibilities), on a Drug Discovery Program-by-Drug Discovery Program basis, commencing on [***] until [***], or such other period as mutually agreed upon by the Parties (the "**Metagenomi Supply Term**"), Metagenomi will Manufacture (a) all applicable Licensed Systems and certain components of the applicable Licensed Products (consistent with those components that Metagenomi manufactures for its own products) (collectively, the "**MG Manufactured Components**"), in each case, that are needed by Ionis for use in its Development activities pursuant to the terms of a development supply agreement (the "**Development Supply Agreement**") to be entered into between the Parties and (b) all MG Manufactured Components needed by Ionis for use in its Commercialization activities pursuant to the terms of a commercial supply agreement (the "**Commercial Supply Agreement**") to be entered into between the Parties. Under the Development Supply Agreement and the Commercial Supply Agreement, Metagenomi will provide the MG Manufactured Components at a cost that represents the Cost of Goods for such MG Manufactured Components *plus* 15% (the "**Supply Price**").

8.1.2. **Requested CMO.** If Metagenomi is, at any point during the Metagenomi Supply Term, Manufacturing any MG Manufactured Components without engaging a CMO, then Ionis may, upon written notice to Metagenomi, require Metagenomi to engage a CMO mutually agreeable to the Parties to conduct Manufacturing under this Agreement (such CMO, the "**Requested CMO**"). Within [***] of Metagenomi's receipt of such notice requesting Metagenomi engage a Requested CMO, Metagenomi will in good faith negotiate and enter into a written agreement with such Requested CMO for the purposes of Manufacturing the MG Manufactured Components (such agreement, the "**Requested CMO Contract**") and conduct a transfer of the Manufacturing Know-How to such Requested CMO and otherwise facilitate implementation of such Manufacturing Know-How, in each case, in a manner consistent with Metagenomi's rights and obligations with respect to the Manufacturing Technology Transfer described in Section 8.5 (Manufacturing After the Metagenomi Supply Term). Metagenomi will ensure that the Requested CMO Contract is expressly and freely assignable to and assumable by Ionis without the consent of the Requested CMO. Metagenomi will provide a draft of the Requested CMO Contract to Ionis prior to executing such Requested CMO Contract for review and comment and will incorporate Ionis' reasonable comments. If Metagenomi does not engage the Requested CMO within [***] of its receipt of notice requiring the engagement of such Requested CMO, then Ionis may terminate the Metagenomi Supply Term and assume all Manufacturing responsibilities for the MG Manufactured Components.

8.2. **Development Supply Agreement.** At such time as directed by the JSC, the Parties will negotiate in good faith the terms of the Development Supply Agreement, and a related quality agreement, which agreements will govern the terms and conditions of the Manufacturing of the MG Manufactured Components for Development purposes; *provided* that if Ionis needs any MG Manufactured Components for its Development activities prior to the Parties entering into the Development Supply Agreement, then Metagenomi will supply such MG Manufactured Components on a per-batch basis and Ionis will pay Metagenomi on a per-batch basis at the Supply Price for each such batch. The Development Supply Agreement and the related quality agreement will include terms and conditions consistent with the principles set forth on Schedule 8.2 (Development Supply Agreement Key Terms).

8.3. **Commercial Supply Agreement.** At such time as directed by the JSC, the Parties will negotiate in good faith the terms of the Commercial Supply Agreement, and a related quality agreement, which agreements will govern the terms and conditions of the Manufacturing of the MG Manufactured Components for Commercialization purposes. The Commercial Supply Agreement and the related quality agreement will include terms and conditions consistent with the principles set forth on Schedule 8.2 (Development Supply Agreement Key Terms), with such modifications that are reasonable and appropriate for a commercial supply.

8.4. **Ionis' Assumption of Manufacturing Responsibilities.** If, (a) [***], or (b) [***], then, in either case, [***]. For clarity, [***].

8.5. **Manufacturing After the Metagenomi Supply Term.** If Ionis assumes all Manufacturing responsibilities for the MG Manufactured Components in accordance with Section 8.1.2 (Requested CMO) or [***] or the Metagenomi Supply Term otherwise expires, then from and after such date, Ionis will have sole control over and sole decision-making authority with respect to, at its cost and expense, all Manufacturing activities for the MG Manufactured Components; *provided* that, at Ionis' request, Metagenomi will continue to Manufacture and supply MG Manufactured Components to Ionis pursuant to the Development Supply Agreement or Commercial Supply Agreement (as applicable) until the earlier of [***] or [***]. Promptly upon Ionis' request after expiration of the Metagenomi Supply Term, Metagenomi will, if and as requested, assign the Requested CMO Contract to Ionis and effect a transfer to Ionis or its designee(s) (which designee may be an Affiliate or a Third Party manufacturer, and which Third Party manufacturer may be a primary, backup, or second manufacturer of such MG Manufactured Component) of all Licensed Know-How that is necessary or reasonably useful to enable the Manufacture of each MG Manufactured Component (the "**Manufacturing Know-How**") and to facilitate implementation of the Manufacturing Know-How at facilities designated by Ionis (such transfer and implementation, as more fully described in this Section 8.5 (Manufacturing After the Metagenomi Supply Period), the "**Manufacturing Technology Transfer**"). Metagenomi will provide all reasonable assistance requested by Ionis to enable Ionis (or its Affiliate or designated Third Party manufacturer, as applicable) to implement the Manufacturing Know-How at the facilities designated by Ionis. If reasonably requested by Ionis, such assistance will include [***]. Without limiting the foregoing, in connection with the Manufacturing Technology Transfer, Metagenomi will cause all appropriate employees and representatives of Metagenomi and its Affiliates to meet with employees or representatives of Ionis (or its Affiliate or designated Third Party manufacturer, as applicable) at the applicable manufacturing facility at mutually convenient times to assist with the working up and use of the Manufacturing Know-How and with the training of the personnel of Ionis (or its Affiliate or designated Third Party manufacturer(s), as applicable) to the extent reasonably necessary to enable Ionis (or its Affiliate or designated Third Party manufacturer(s), as applicable) to use and practice the Manufacturing Know-How. Each Party will be responsible for its own costs and expenses incurred in conducting the Manufacturing Technology Transfer.

Article 9
Consideration; Financial Terms

9.1. **Upfront Payment**. Ionis will pay Metagenomi a one-time upfront payment of $80,000,000 (the "**Upfront Payment**") no later than [***] after the Effective Date. The Upfront Payment is non- creditable and non-refundable.

9.2. **Wave 2 Target Selection Fee**. On a Wave 2 Target-by-Wave 2 Target basis, promptly following the designation of a Wave 2 Target as a Collaboration Target in accordance with Section 2.1.4(c) (Effects if a Proposed Target is Available), Metagenomi will invoice Ionis for the applicable amount set forth in Table 9.2, which amount will be based on the applicable scenario for selection of such Wave 2 Target (each such payment, a "**Wave 2 Target Selection Fee**"). Ionis will pay such Wave 2 Target Selection Fee no later than [***] after receipt of such invoice. For clarity, each Wave 2 Target Selection Fee is only payable once for each Wave 2 Target that is designated as a Collaboration Target.

Table 9.2 – Wave 2 Target Selection Fee

Wave 2 Target Selection Scenario	Wave 2 Target Selection Fee
Scenario 1: If the Wave 2 Target is a target [***]	[***]
Scenario 2: If the Wave 2 Target is a target [***]	[***]
Scenario 3: If the Wave 2 Target is a target [***]	[***]

In order for Scenario 2 of Table 9.2 to apply, Metagenomi must (a) [***] and (b) [***].

9.3. **Option Exercise Fee**. On a Drug Discovery Program-by-Drug Discovery Program basis, if Metagenomi exercises a Co-Co Option for a Drug Discovery Program during the applicable Co-Co Option Period in accordance with Section 5.1.3 (Option Exercise), then Metagenomi will reimburse Ionis in accordance with the terms set forth in this Section 9.3 (Option Exercise Fee), which reimbursement will be equal to 50% of the Internal Costs and Out-of-Pocket Costs incurred by Ionis in the conduct of the Drug Discovery Activities for such Drug Discovery Program prior to the exercise of the Co-Co Option for such Drug Discovery Program *minus* 50% of the Internal Costs and Out-of-Pocket Costs incurred by Metagenomi in the conduct of the Drug Discovery Activities for such Drug Discovery Program prior to the exercise of the Co-Co Option for such Drug Discovery Program if such amount is a positive number (such amount, the "**Option Exercise Fee**" for such Drug Discovery Program). No later than [***] after the date on which Metagenomi exercises a Co-Co Option for a Drug Discovery Program, each Party will deliver to the other Party a written report, with reasonable supporting documentation, that sets forth the Internal Costs and Out-of-Pocket Costs incurred by or on behalf of such Party in connection with performance of the Drug Discovery Activities for such Drug Discovery Program (to the extent in accordance with the applicable Drug Discovery Plan) (each, a "**Development Cost Share Notice**"). Promptly after delivery of each Development Cost Share Notice, Ionis will invoice Metagenomi for the Option Exercise Fee (if any) and Metagenomi will pay the Option Exercise Fee no later than [***] after receipt of Ionis' invoice.

9.4. **Ionis Product Milestone Payments.**

9.4.1. **Ionis Product Development Milestone Payments.** Subject to the terms and conditions of this Agreement, including Section 9.5 (Ionis Products for [***] Target Populations), (a) with respect to the [***] set forth below, on an Ionis Program- by-Ionis Program basis and (b) with respect to the [***] set forth below, on an Ionis Product-by-Ionis Product basis, Ionis will pay one-time milestone payments to Metagenomi of the amounts set forth in Table 9.4.1 (each, an "**Ionis Product Development Milestone Payment**") upon the first achievement by Ionis or any of its Affiliates or Sublicensees of each of the development milestone events set forth in Table 9.4.1 (each, an "**Ionis Product Development Milestone Event**") for each Ionis Program or Ionis Product (as applicable); *provided* that, with respect to the [***] set forth below, on an Ionis Program-by-Ionis Program basis, if more than one Ionis Product for the same Ionis Program achieve an Ionis Product Development Milestone Event, then [***]. Each Ionis Product Development Milestone Payment is payable only once for each Ionis Program or Ionis Product (as applicable), regardless of the number of times the corresponding Ionis Product Development Milestone Event is achieved for such Ionis Program or Ionis Product (as applicable). If Ionis or its Affiliates or Sublicensees achieve all of the Ionis Product Development Milestone Events for an Ionis Product, then the Ionis Product Development Milestone Payments payable by Ionis under this Section 9.4.1 (Ionis Product Development Milestone Payments) for such Ionis Product will not exceed $29,000,000.

Table 9.4.1 – Ionis Product Development Milestones

Ionis Product Development Milestone Event	Ionis Product Development Milestone Payment
[***]	[***]
[***]	[***]
[***]	[***]

9.4.2. **Ionis Product Regulatory Milestone Payments.** Subject to the terms and conditions of this Agreement, including Section 9.5 (Ionis Products for [***] Target Populations), on an Ionis Product-by-Ionis Product basis, Ionis will pay one-time milestone payments to Metagenomi of the amounts set forth in Table 9.4.2 (each, an "**Ionis Product Regulatory Milestone Payment**") upon the first achievement by Ionis or any its Affiliates or Sublicensees of each of the regulatory milestone events set forth in Table 9.4.2 (each, an "**Ionis Product Regulatory Milestone Event**") by an Ionis Product. Each Ionis Product Regulatory Milestone Payment is payable only once for each Ionis Product, regardless of the number of times the corresponding Ionis Product Regulatory Milestone Event is achieved for an Ionis Product. If Ionis or its Affiliates or Sublicensees achieve all of the Ionis Product Regulatory Milestone Events for an Ionis Product, then the Ionis Product Regulatory Milestone Payments payable by Ionis under this Section 9.4.2 (Ionis Product Regulatory Milestone Payments) for such Ionis Product will not exceed $60,000,000.

Table 9.4.2 – Ionis Product Regulatory Milestones

Ionis Product Regulatory Milestone Event	Ionis Product Regulatory Milestone Payment
[***]	[***]
[***]	[***]

9.4.3. **Ionis Product Sales Milestone Payments.** Subject to the terms and conditions of this Agreement, including Section 9.5 (Ionis Products for [***] Target Populations), on an Ionis Product-by-Ionis Product basis, Ionis will pay one-time milestone payments to Metagenomi of the amounts set forth in Table 9.4.3 (each, an "**Ionis Product Sales Milestone Payment**") upon the first achievement by Ionis or any of its Affiliates or Sublicensees of each of the sales milestone events set forth in Table 9.4.3 (each, an "**Ionis Product Sales Milestone Event**") for an Ionis Product. Each Ionis Product Sales Milestone Payment is payable only once for each Ionis Product, regardless of the number of times the corresponding Ionis Product Sales Milestone Event is achieved for an Ionis Product. If Ionis or its Affiliates or Sublicensees achieve all of the Ionis Product Sales Milestone Events for an Ionis Product, then the Ionis Product Sales Milestone Payments payable by Ionis under this Section 9.4.3 (Ionis Product Sales Milestone Payments) for such Ionis Product will not exceed $250,000,000.

Table 9.4.3 – Ionis Product Sales Milestones

Ionis Product Sales Milestone Event	Ionis Product Sales Milestone Payment
1. The first Calendar Year in which the aggregate Net Sales for an Ionis Product exceed [***]	[***]
2. The first Calendar Year in which the aggregate Net Sales for an Ionis Product exceed [***]	[***]
3. The first Calendar Year in which the aggregate Net Sales for an Ionis Product exceed [***]	[***]
4. The first Calendar Year in which the aggregate Net Sales for an Ionis Product exceed [***]	[***]

9.4.4. **Notice; Payment; Skipped Milestones.** Ionis will provide Metagenomi with written notice upon the achievement of each Ionis Product Development Milestone Event, Ionis Product Regulatory Milestone Event, and Ionis Product Sales Milestone Event, such written notice to be provided (a) with respect to any Ionis Product Development Milestone Event or Ionis Product Regulatory Milestone Event within [***] after such achievement and (b) with respect to any Ionis Product Sales Milestone Event, on or prior to the date of delivery of the Ionis Royalty Report under Section 9.6.4 (Ionis Royalty Reports) for the Calendar Year in which such milestone event is first achieved. Following receipt of such written notice, Metagenomi will promptly invoice Ionis for the applicable milestone payment and Ionis will make the appropriate milestone payment within [***] after receipt of such invoice; *provided* that with respect to the first Ionis Product Development Milestone Event (for selection of the first Development Candidate for an Ionis Program), Metagenomi may only invoice Ionis after [***], and Ionis will have no obligation to make any payment with respect to such Ionis Product Development Milestone Event unless [***] and Metagenomi provides Ionis with an invoice for the applicable amount. Each Ionis Product Development Milestone Event is intended to be successive. If any Ionis Product Development Milestone Event does not occur with respect to an Ionis Product for an Ionis Program, then such skipped milestone event will be deemed to have been achieved upon the achievement of the next successive milestone event with respect to an Ionis Product for such Ionis Program. Payment for any such skipped milestone that is owed in accordance with the provisions of the foregoing sentence will be due concurrently with the payment for the next successive Ionis Product Development Milestone Event. If more than one Ionis Product Sales Milestone Event occurs with respect to an Ionis Product in the same Calendar Year, then payments with respect to all applicable Ionis Product Sales Milestone Events will be paid for such Calendar Year.

9.5. **Ionis Products for [***] Target Populations**. If an Ionis Product is intended to treat target populations with [***] (each such population, [***] "[***] **Target Population**"), then Ionis will notify Metagenomi and [***], in each case, for such Ionis Product, [***].

9.6. **Ionis Product Royalty Payments.**

9.6.1. **Ionis Royalty Rates.** Subject to the terms and conditions of this Agreement, including the provisions of Section 9.6.2. (Adjustments to Ionis Royalties), on an Ionis Product-by- Ionis Product basis, Ionis will pay Metagenomi royalties based on the aggregate Annual Net Sales of each Ionis Product at the rates set forth in Table 9.6.1. On an Ionis Product- by-Ionis Product and country-by-county basis such royalties will be payable until the expiration of the applicable Royalty Term for each Ionis Product in such country. The royalty payments made pursuant to this Section 9.6.1 (Ionis Royalty Rates), the "**Ionis Royalties**" and the rates set forth in Table 9.6.1, the "**Ionis Royalty Rates**."

Table 9.6.1 – Royalty Rates for Ionis Products

Annual Net Sales of an Ionis Product in the Territory	*Royalty Rate as a Percentage of Net Sales*
Portion of Annual Net Sales of each Ionis Product that is less than or equal to [***]	[***]
Portion of Annual Net Sales of each Ionis Product that is greater than [***], and less than or equal to [***]	[***]
Portion of Annual Net Sales for each Ionis Product that is greater than [***], and less than or equal to [***]	[***]
Portion of Annual Net Sales of each Ionis Product that is greater than [***]	[***]

By way of example only, if the Annual Net Sales for an Ionis Product are [***] for a given Calendar Year, then the Ionis Royalties payable with respect to such Annual Net Sales for such Ionis Product in such Calendar Year, subject to adjustment as set forth in Section 9.6.2 (Adjustment to Ionis Royalties) would be: [***] + [***] + [***] + [***] = [***]. For the avoidance of doubt, the obligation to pay Ionis Royalties will be imposed only once with respect to the same unit of an Ionis Product.

9.6.2. Adjustments to Ionis Royalties.

(a) **Expiration of Valid Claims.** Subject to Section 9.6.3 (Cumulative Effect of Ionis Royalty Reductions), on an Ionis Product-by-Ionis Product and country-by-country basis in the Territory, if during the Royalty Term for an Ionis Product in a given country there is no Valid Claim of a Royalty Bearing Patent Right Covering such Ionis Product in such country, then commencing in the first Calendar Quarter after the date on which this Section 9.6.2(a) (Expiration of Valid Claims) applies and for the remainder of the Royalty Term for such Ionis Product in such country, the Annual Net Sales for such Ionis Product in such country will be reduced by [***] for purposes of calculating the Ionis Royalties owed under Section 9.6.1 (Ionis Royalty Rates).

(b) **Biosimilar Product.** Subject to Section 9.6.3 (Cumulative Effect of Ionis Royalty Reductions), if, on an Ionis Product-by-Ionis Product and country-by-country basis, a Biosimilar Product with respect to an Ionis Product is approved for sale in a country, then commencing in the Calendar Quarter in which such approval was obtained and continuing for the remainder of the Royalty Term for such Ionis Product in such country, the Annual Net Sales for such Ionis Product in such country will be reduced by [***] for purposes of calculating the Ionis Royalties owed under Section 9.6.1 (Ionis Royalty Rates).

(c) **Third Party Payments.** Subject to Section 9.6.3 (Cumulative Effect of Ionis Royalty Reductions), Ionis will be entitled to credit against the Ionis Royalties due to Metagenomi in a given Calendar Quarter [***] of (i) [***] that are actually paid by Ionis or any of its Affiliates or Sublicensees to any Third Party in consideration for rights under any Patent Right, Know-How, or other intellectual property owned or controlled by such Third Party (whether by acquisition or license) (such rights, "**Third Party IP**") that is acquired or licensed by Ionis or any of its Affiliates or

Sublicensees after the Effective Date, and [***] useful for Ionis or any of its Affiliates or Sublicensees to Exploit a Development Candidate as such Development Candidate exists as of the date of expiration of the Drug Discovery Term for the applicable Drug Discovery Program, and (ii) [***] (such amount in (i) or (ii), the "**Third Party Payment**"). Notwithstanding the foregoing, Third Party Payment shall exclude [***].

9.6.3. **Cumulative Effect of Ionis Royalty Reductions.** In no event will the royalty reductions for Ionis Products permitted under Section 9.6.2(a) (Expiration of Valid Claims), Section 9.6.2(b) (Biosimilar Product), or Section 9.6.2(c) (Third Party Payments), alone or together, reduce the Ionis Royalties due to Metagenomi for an Ionis Product in a given Calendar Quarter by more than [***] of the applicable Ionis Royalties that would otherwise be owed on the Annual Net Sales of such Ionis Product. If Ionis would, but for the restriction set forth in this Section 9.6.3 (Cumulative Effect of Ionis Royalty Reductions), have the right to reduce the Ionis Royalties due to Metagenomi by more than [***], then [***].

9.6.4. **Ionis Royalty Reports.** Commencing on the First Commercial Sale of an Ionis Product and for so long as Ionis Royalties are due under this Agreement, no later than (a) [***] prior to the start of each Calendar Year, Ionis will deliver a written good faith nonbinding estimate to Metagenomi of the projected Net Sales for the upcoming Calendar Year, (b) [***] after the end of each Calendar Quarter, Ionis will deliver a written good faith non-binding estimate to Metagenomi of the Net Sales in the relevant Calendar Quarter and the Ionis Royalties payable on such Net Sales, and (c) [***] after the end of each Calendar Quarter, Ionis will deliver a written report (each, an "**Ionis Royalty Report**") to Metagenomi specifying on an Ionis Product-by-Ionis Product and country- by-country basis: (i) Net Sales in the relevant Calendar Quarter; (ii) to the extent such Net Sales include sales not denoted in US Dollars, a summary of the then-current exchange rate methodology(ies) used for the calculation of Net Sales in accordance with Section 9.14 (Currency of Payment; Non-Refundable Payments); (iii) the Ionis Royalties payable on such Net Sales; and (iv) if applicable, the Ionis Product Sales Milestone Payments owed to Metagenomi in the relevant Calendar Quarter. All Ionis Royalty Reports will be the Confidential Information of Ionis. Ionis will pay the Ionis Royalties for each Calendar Quarter no later than [***] after receipt of an invoice from Metagenomi, which invoice will be provided promptly following Metagenomi's receipt of each Ionis Royalty Report from Ionis pursuant to this Section 9.6.4 (Ionis Royalty Reports). For clarity, the submission by Metagenomi of an invoice to Ionis based on an Ionis Royalty Report will be without prejudice to Metagenomi's right to dispute an Ionis Royalty Report or to audit an Ionis Royalty Report pursuant to Section 9.13 (Records and Audits).

9.7. **Existing In-License Agreements.**

9.7.1. **Effective Date Licensed Technology; Existing Metagenomi In-License Agreements**. Metagenomi hereby represents and warrants that none of the Licensed Technology Controlled by Metagenomi as of the Effective Date is in-licensed or acquired by Metagenomi under agreements with Third Party licensors or sellers. On a Collaboration Target-by-Collaboration Target basis, if any Patent Rights or Know-How, as of the date a Proposed Target becoming a Collaboration Target pursuant to Section 2.1.4(c) (Effects if a Proposed Target is Available), have been acquired or in-licensed by Metagenomi and if solely owned by Metagenomi without any encumbrance or restriction on licensing, would constitute Licensed Technology as a result of such Proposed Target becoming a

Collaboration Target pursuant to Section 2.1.4(c) (Effects if a Proposed Target is Available) (any such agreement, an "**Existing Potential Metagenomi In-License Agreement**"), then Metagenomi will, within [***] of the applicable Proposed Target becoming a Collaboration Target, provide Ionis with (a) notice and a copy of such Existing Potential Metagenomi In-License Agreements (which may be redacted to exclude provisions thereof that would not be applicable to Ionis as a licensee or sublicensee (as the case may be)), and (b) any disclosures that would be made against the representations and warranties in Section 12.2 (Additional Representations of Metagenomi) if such Existing Potential Metagenomi In-License Agreements were to become Metagenomi In-License Agreements. If Ionis provides written notice, within [***] of receipt of such information from Metagenomi, that it would like to have any such Existing Potential Metagenomi In-License Agreement included in the licenses granted under this Agreement and be subject to the terms of such Existing Potential Metagenomi In-License Agreement that are applicable to a licensee or sublicensee (as the case may be) thereunder, then such intellectual property rights described in such notice will automatically be deemed included in the Licensed Technology, and such Existing Potential Metagenomi In-License Agreement will be considered a Metagenomi In-License Agreement. Except as otherwise provided in this Agreement, as between the Parties, Metagenomi will be responsible for all payments that arise under any license or other agreement to which Metagenomi or its Affiliate is a party, including any Metagenomi In-License Agreement, in connection with this Agreement, including with respect to the Development, Manufacture, and Commercialization of Licensed Products.

9.7.2. **Existing Potential Ionis In-License Agreements**. With respect to any Patent Rights or Know-How that are the subject of an Ionis IP Option and are in-licensed or acquired by Ionis from any Third Party as of the applicable Ionis IP Option Effective Date (any such agreement, an "**Existing Potential Ionis In-License Agreement**"), Ionis will, within [***] of the applicable Ionis IP Option Effective Date, provide Metagenomi with notice and a copy of each such Existing Potential Ionis In-License Agreement (which may be redacted to exclude provisions thereof that would not be applicable to Metagenomi as a licensee or sublicensee (as the case may be)). If Metagenomi provides written notice, within [***] of receipt of such information from Ionis, that it would like to have any such Existing Potential Ionis In-License Agreement included in the licenses granted under this Agreement and be subject to the terms of such Existing Potential Ionis In-License Agreement that are applicable to a licensee or sublicensee (as the case may be) thereunder, then such intellectual property rights described in such notice will automatically be deemed included in the Ionis Background Technology and such Existing Potential Ionis In-License Agreement will be considered an Ionis In-License Agreement.

9.8. **New In-License Agreements.**

9.8.1. **Proposed New In-License Agreements.** Either Party (an "**Acquiring Party**") may, during the Term, acquire or in-license rights to additional intellectual property from a Third Party that, if solely owned by such Party, without any encumbrance or restriction on licensing, would constitute Licensed Technology (if such Acquiring Party is Metagenomi) or Ionis Background Technology (if such Acquiring Party is Ionis) (any such agreement entered into by Metagenomi, a "**Proposed New Metagenomi In-License Agreement**," any such agreement entered into by Ionis, a "**Proposed New Ionis In-License Agreement**," and any Proposed New Metagenomi In-License Agreements or Proposed New Ionis In-License Agreements, a "**Proposed New In-License Agreement**"). Any such Proposed New In-License Agreement will be freely licensable or sublicensable to the non-Acquiring Party

to the same extent that Licensed Technology or Ionis Background Technology (as applicable) is licensed to the non-Acquiring Party hereunder (including the right to grant sublicenses through multiple tiers) and will not (a) impose any material restrictions or obligations on the non-Acquiring Party as a licensee or sublicensee or (b) disadvantage the non-Acquiring Party, in each case ((a) and (b)), as compared to any other potential licensee or sublicensee under such Proposed New In-License Agreement. The Acquiring Party will [***] include in any such Proposed New In-License Agreement that is an in-license a provision pursuant to which [***]. Promptly following execution of a Proposed New In-License Agreement, the Acquiring Party will provide the non-Acquiring Party with a copy of such Proposed New In-License Agreement (which may be redacted to exclude provisions thereof that would not be applicable to the non-Acquiring Party as a licensee or sublicensee (as the case may be)).

9.8.2. **Acceptance of a Proposed In-License Agreement.** If the non-Acquiring Party provides written notice, within [***] of receipt of a Proposed New In-License Agreement, that it would like to have such intellectual property rights included in the licenses granted under this Agreement and be subject to the terms of such Proposed New In-License Agreement that are applicable to a licensee or sublicensee (as the case may be) thereunder, then such intellectual property rights described in such notice will automatically be deemed included in the Licensed Technology (if such Acquiring Party is Metagenomi) or Ionis Background Technology (if such Acquiring Party is Ionis) (any such Proposed New Metagenomi In-License Agreement with respect to intellectual property rights that are included in the Licensed Technology pursuant to this sentence, a "**New Metagenomi In-License Agreement**," any such Proposed New Ionis In-License Agreement with respect to intellectual property rights that are included in the Ionis Background Technology pursuant to this sentence, a "**New Ionis In-License Agreement**" and any New Metagenomi In-License Agreement or New Ionis In-License Agreement, a "**New In-License Agreement**").

9.9. **Payment Obligations Under Certain In-License Agreements.** Any payment obligations arising under the Metagenomi In-License Agreements or the Ionis In-License Agreements that are directly a result of the Development, Manufacture, or Commercialization of a Licensed Product or Metagenomi Product (as applicable) in the Field by or on behalf of the non-Acquiring Party or any of its Affiliates or Sublicensees, after application of all available reductions to and deductions from such payment obligations under the applicable agreement (but, for the avoidance of doubt, excluding [***] will be paid by [***] and reimbursed by the [***] in accordance with this Section 9.9 (Payment Obligations Under Certain In-License Agreements), but, with respect to [***], subject to [***] pursuant to Section 9.6.2(c) (Third Party Payments). Except as set forth in the immediately preceding sentence, [***] will be responsible for [***] under such agreements (including [***]). [***] will provide the [***] with a reasonably detailed invoice for any payments made by the [***] under a Metagenomi In-License Agreement or Ionis In-License Agreement that are [***] pursuant to this Section 9.9 (Payment Obligations Under Certain In-License Agreements) within [***], and [***] will pay the undisputed portion of such invoices within [***] of receipt thereof. For clarity, the [***] and its Affiliates will be [***] under a Metagenomi In-License Agreement or Ionis In-License Agreement one time only. Notwithstanding the foregoing, the [***] may, in its sole discretion, notify [***] that it elects to abandon its payment obligations under this Section 9.9 (Payment Obligations Under Certain In-License Agreements) with respect to a Metagenomi In-License Agreement or Ionis In-License Agreements, whereupon such agreement will no longer be deemed to be a Metagenomi In-License Agreement or Ionis In-License Agreements under this Agreement (as applicable) and the [***] will no longer be responsible for such payment obligations from and after the date of such notice.

9.10. Metagenomi Product Economics.

9.10.1. Metagenomi Product Milestone Payments. If Metagenomi exercises the Ionis IP Option in accordance with Section 2.7 (Ionis Proprietary Toolbox of Chemical Modifications), then, on a Metagenomi Product-by-Metagenomi Product basis, Metagenomi will pay one-time milestone payments to Ionis of the amounts set forth in Table 9.10.1 (each, a "**Metagenomi Product Milestone Event**") upon the first achievement by Metagenomi or any of its Affiliates or Sublicensees of each of the milestone events set forth in Table 9.10.1 (each, a "**Metagenomi Product Milestone Payment**") for a Metagenomi Product. Each Metagenomi Product Milestone Payment is payable only once for each Metagenomi Product, regardless of the number of times the corresponding Metagenomi Product Milestone Event is achieved for a Metagenomi Product. If Metagenomi or its Affiliates or Sublicensees achieve all of the Metagenomi Product Milestone Events for a Metagenomi Product, then the Metagenomi Product Milestone Payments payable by Metagenomi under this Section 9.10.1 (Metagenomi Product Milestone Payments) for such Metagenomi Product will not exceed [***].

Table 9.10.1 – Metagenomi Product Milestones

Metagenomi Product Milestone Event	Metagenomi Product Milestone Payment
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

9.10.2. Notice; Payment; Skipped Milestones. Metagenomi will provide Ionis with written notice upon the achievement of each Metagenomi Product Milestone Event within [***] after such achievement and will pay Ionis within [***] after receipt of an invoice from Ionis. Each Metagenomi Product Milestone Event is intended to be successive. If any Metagenomi Product Milestone Event does not occur with respect to a Metagenomi Product, then such skipped milestone event will be deemed to have been achieved upon the achievement of the next successive milestone event with respect to such Metagenomi Product; *provided* that the [***] Metagenomi Product Milestone Event shall not be deemed to have been achieved upon the achievement of the [***] Metagenomi Product Milestone Event. Payment for any such skipped milestone that is owed in accordance with the provisions of the foregoing sentence will be due concurrently with the payment for the next successive Metagenomi Product Milestone Event.

9.10.3. Metagenomi Royalties.

(a) **Metagenomi Royalty Rates**. Subject to the terms and conditions of this Agreement, including the provisions of Section 9.10.3(b) (Adjustments to Metagenomi Royalties), on a Metagenomi Product-by-Metagenomi Product and country-by-country basis, Metagenomi will pay Ionis an amount equal to [***] of the Net Sales of the applicable Metagenomi Product in a country in the Territory by Metagenomi and its Affiliates and its Sublicensees until the expiration of the applicable Metagenomi Royalty Term for such Metagenomi Product in such country. The royalty payments made pursuant to this Section 9.10.3(a) (Metagenomi Royalty Rates), the "**Metagenomi Royalties**" and the rate set forth in this Section 9.10.3(a) (Metagenomi Royalty Rates), the "**Metagenomi Royalty Rate**."

(b) **Adjustment to Metagenomi Royalties**. On a Metagenomi Product-by- Metagenomi Product and country-by-country basis in the Territory, if during the Metagenomi Royalty Term for a Metagenomi Product in a given country there is no Valid Claim of a Patent Right within the Ionis Background Technology Covering such Metagenomi Product in such country, then commencing in the first Calendar Quarter after the date on which this Section 9.10.3(b) (Adjustments to Metagenomi Royalties) applies and for the remainder of the Royalty Term for such Metagenomi Product in such country, the Net Sales for such Metagenomi Product in such country will be reduced by [***] for purposes of calculating the Metagenomi Royalties owed under Section 9.10.3(a) (Metagenomi Royalty Rates).

9.10.4. **Metagenomi Royalty Reports**. Commencing on the First Commercial Sale (applied *mutatis mutandis*) of a Metagenomi Product and for so long as Metagenomi Royalties are due under this Agreement, no later than (a) [***] prior to the start of each Calendar Year, Metagenomi will deliver a written good faith non-binding estimate to Ionis of the projected Net Sales for the upcoming Calendar Year, (b) [***] after the end of each Calendar Quarter, Metagenomi will deliver a written good faith non-binding estimate to Ionis of the Net Sales in the relevant Calendar Quarter and the Metagenomi Royalties payable on such Net Sales, and (c) [***] after the end of each Calendar Quarter, Metagenomi will deliver a written report (each, a "**Metagenomi Royalty Report**") to Ionis specifying on a Metagenomi Product-by-Metagenomi Product and country-by-country basis: (i) Net Sales in the relevant Calendar Quarter; (ii) to the extent such Net Sales include sales not denoted in US Dollars, a summary of the then-current exchange rate methodology(ies) used for the calculation of Net Sales in accordance with Section 9.14 (Currency of Payment; Non-Refundable Payments); and (iii) the Metagenomi Royalties payable on such Net Sales. All Metagenomi Royalty Reports will be the Confidential Information of Metagenomi. Metagenomi will pay the Metagenomi Royalties for each Calendar Quarter no later than [***] after receipt of an invoice from Ionis, which invoice will be provided promptly following Ionis' receipt of each Metagenomi Royalty Report from Metagenomi pursuant to this Section 9.10.4 (Metagenomi Royalty Reports). For clarity, the submission by Ionis of an invoice to Metagenomi based on a Metagenomi Royalty Report will be without prejudice to Ionis' right to dispute a Metagenomi Royalty Report or to audit a Metagenomi Royalty Report pursuant to Section 9.13 (Records and Audits).

9.11. **Other Payments.** With respect to any amounts owed under this Agreement by one Party to the other for which no other invoicing and payment procedure is otherwise specified in this Agreement, a Party will provide an invoice, together with reasonable supporting documentation, to the other Party for such amounts. The owing Party will pay any undisputed amounts within [***] of receipt of the invoice, and any disputed amounts owed by a Party will be paid within [***] of resolution of the dispute in accordance with Section 15.1 (Dispute Resolution).

9.12. **Right to Offset.** Ionis will have the right to offset any amount owed by Metagenomi to Ionis that are (a) [***], or (b) [***], in each case, against any payments owed by Ionis to Metagenomi under this Agreement. Such offsets will be in addition to any other rights or remedies available under this Agreement and Applicable Law. For clarity, the foregoing right to offset will only apply to [***].

9.13. Records and Audits.

9.13.1. Books and Records. Each Party will keep (and will cause its Affiliates and Sublicensees to keep) complete and accurate books and records pertaining to (a) in the case of Ionis, all Internal Costs and Out-of-Pocket Costs incurred in connection with the performance of the Drug Discovery Activities, Net Sales of Ionis Products, any amounts paid under any Ionis In-License Agreement, and any costs shared by the Parties for the Co-Co Products pursuant to a Co-Development and Co-Commercialization Agreement (the "**Ionis Records**") and (b) in the case of Metagenomi, all Internal Costs and Out-of-Pocket Costs incurred in connection with the performance of the Collaboration Activities, Net Sales of the Metagenomi Products, any amounts paid under any Metagenomi In-License Agreement, and any costs shared by the Parties for the Co-Co Products pursuant to a Co-Development and Co-Commercialization Agreement (the "**Metagenomi Records**"), in each case ((a) and (b)), in reasonable detail to permit the other Party to confirm the accuracy of all payments or costs reported for at least the preceding [***]. During the Term and for a period of [***] thereafter, each Party (the "**Auditing Party**") may, upon written request and subject to this Section 9.13 (Records and Audits), cause a nationally-recognized independent accounting firm (the "**Auditor**"), that is reasonably acceptable to the other Party (the "**Audited Party**") to inspect the relevant records of such Audited Party and its Affiliates to verify the payments made and amounts reported by the Audited Party and the directly related reports, statements, and books of accounts, as applicable.

9.13.2. Audit Procedure. Before beginning its audit, the Auditor will execute a written agreement acceptable to the Audited Party by which the Auditor agrees to keep confidential all information reviewed during the audit, which agreement will contain terms of non-disclosure and non-use no less stringent than those set forth in this Agreement, but otherwise will be reasonable and customary for the purposes of an audit of this nature. The Auditor will have the right to disclose to the Auditing Party only its conclusions regarding any payments owed under this Agreement. Each Party and its Affiliates will make their records available for inspection by the Auditor during regular business hours at such place or places where such records are customarily kept, upon receipt of reasonable advance notice from the Auditing Party. The records will be reviewed solely to verify the Audited Party's compliance with the payment obligations and financial terms of this Agreement.

9.13.3. Frequency; Overpayments and Underpayments. Such inspection right will not be exercised more than [***] and not more frequently than [***] with respect to records covering any specific period of time. In addition, the Auditing Party will only be entitled to audit the books and records of the Audited Party for the [***] prior to the [***] in which the audit request is made. The Auditing Party agrees to hold in strict confidence all information received and all information learned in the course of any audit or inspection, except to the extent necessary to enforce its rights under this Agreement or to the extent required to comply with any Applicable Law or judicial order. The Auditor will provide its audit report and basis for any determination to the Audited Party at the time such report is provided to the Auditing Party before it is considered final. If the final result of the inspection reveals an underpayment or overpayment by either Party, then the underpaid or overpaid amount will be settled promptly plus interest due on any underpayments in accordance with Section 9.15 (Late Fees). The Auditing Party will pay for such inspections, as well as its expenses associated with enforcing its rights with respect to any payments hereunder; unless such audit reveals an underpayment of amounts owed to, or an overpayment of amounts owed by, the Auditing Party of more than [***] of the amount that was owed by the Audited Party or owed to the Audited Party, as applicable, with respect to the relevant period, in which case, the Audited Party will reimburse the Auditing Party for the reasonable expense incurred by the Auditing Party in connection with the audit.

9.14. **Currency of Payment; Non-Refundable Payments.** All amounts to be paid pursuant to this Agreement will be made in United States Dollars and will be paid by wire transfer in immediately available funds to a bank account designated by the receiving Party. The rate of exchange to be used in computing the amount of currency equivalent in U.S. Dollars owed to a Party under this Agreement will be the paying Party's then-current standard exchange rate methodology employed for the translation of foreign currency sales into U.S. Dollars in accordance with its Accounting Standards and consistently applied during the period. Any provisions of this Agreement that describe a payment as non-refundable will be without prejudice to either Party's right to bring a claim for breach of this Agreement, misrepresentation, or any other claim permissible under Applicable Law, including seeking recovery of payments made and damages for loss.

9.15. **Late Fees.** If a Party does not receive payment of any undisputed sum due to it on or before the due date set forth under this Agreement, then simple interest will thereafter accrue on the sum due to such Party from the due date until the date of payment at a per-annum rate of [***] or the maximum rate allowable under Applicable Law, whichever is lower.

9.16. **Currency Restrictions.** If, by reason of Applicable Law in any country, it becomes impossible or illegal for a Party to transfer, or have transferred on its behalf, payments owed to the other Party hereunder, then such Party will promptly notify the other Party of the conditions preventing such transfer and such payments will be deposited in local currency in the relevant country to the credit of the other Party in a recognized banking institution designated by the other Party or, if none is designated by the other Party within a period of [***], in a recognized banking institution selected by the transferring Party, as the case may be, and identified in a written notice given to the other Party.

9.17. **Withholding Taxes**. Either Party (a "**Withholding Party**") may withhold from payments due to the other Party (a "**Non-Withholding Party**") amounts for payment of any withholding tax that is required by Applicable Law to be paid to any taxing authority with respect to such payments, which will be remitted in accordance with Applicable Law. The Withholding Party will provide to the Non-Withholding Party all relevant documents and correspondence, and will also provide to the Non-Withholding Party any other cooperation or assistance on a reasonable basis as may be necessary to enable the Non-Withholding Party to claim exemption from such withholding taxes and to receive a refund of such withholding tax or claim a foreign tax credit. The Withholding Party will give proper evidence from time to time as to the payment of any such tax. The Parties will cooperate with each other in seeking deductions under any double taxation or other similar treaty or agreement from time to time in force. Such cooperation may include the Withholding Party making payments from a single source in the U.S., where possible. Notwithstanding the foregoing, [***].

Article 10
Intellectual Property

10.1. **Ownership of Inventions.**

10.1.1. **Background Intellectual Property.** As between the Parties, and subject to the licenses granted under this Agreement, each Party retains all rights, title, and interests in and to all Intellectual Property Rights that such Party owns or Controls as of the Effective Date or that it develops or otherwise acquires after the Effective Date outside the performance of the activities under this Agreement.

10.1.2. **By Inventorship.** For purposes of determining ownership under this Section 10.1.2 (By Inventorship), inventorship will be determined in accordance with United States patent laws (regardless of where the applicable activities occurred).

(a) **Metagenomi Collaboration Technology**. Metagenomi will be the sole owner of any Know-How discovered, developed, invented, or created solely by Metagenomi or its Affiliates or Third Parties acting on its or their behalf, in each case, in the performance of activities under this Agreement ("**Metagenomi Collaboration Know-How**") and any Patent Rights that Cover the Metagenomi Collaboration Know-How ("**Metagenomi Collaboration Patent Rights**" and together with the Metagenomi Collaboration Know-How, the "**Metagenomi Collaboration Technology**"), and will retain all of its rights thereto, subject to any rights or licenses expressly granted by Metagenomi to Ionis under this Agreement.

(b) **Ionis Collaboration Technology**. Ionis will be the sole owner of any Know-How discovered, developed, invented, or created solely by Ionis or its Affiliates or Third Parties acting on its or their behalf, in each case, in the performance of activities under this Agreement ("**Ionis Collaboration Know-How**") and any Patent Rights that Cover the Ionis Collaboration Know-How ("**Ionis Collaboration Patent Rights**" and together with the Ionis Collaboration Know-How, the "**Ionis Collaboration Technology**"), and will retain all of its rights thereto, subject to any rights or licenses expressly granted by Ionis to Metagenomi under this Agreement.

(c) **Joint Collaboration Technology**. Any Know-How discovered, developed, invented, or created jointly by (i) Ionis, its Affiliates, or Third Parties acting on its or their behalf and (ii) Metagenomi, its Affiliates, or Third Parties acting on its or their behalf, in each case, in the performance of activities under this Agreement (including in any meeting of the JSC or any Subcommittee) (such Know-How, "**Joint Collaboration Know-How**"), and any Patent Rights that Cover such Joint Collaboration Know-How ("**Joint Collaboration Patent Rights**," and together with the Joint Collaboration Know-How, the "**Joint Collaboration Technology**"), will be owned jointly by Ionis and Metagenomi on an equal and undivided basis, including all rights thereto, subject to any rights or licenses expressly granted by one Party to the other Party under this Agreement. Except as expressly provided in this Agreement, neither Party will have any obligation to account to the other for profits with respect to, or to obtain any consent of the other Party to license or exploit, Joint Collaboration Technology by reason of joint ownership thereof, and each Party hereby waives any right it may have under the laws of any jurisdiction to require any such consent or accounting.

10.1.3. **Disclosure.** During the Term, (a) Ionis will promptly disclose to designated Metagenomi personnel (including Metagenomi scientific and intellectual property personnel) in writing, and will cause its Affiliates to so disclose, the discovery, development, invention, or creation of any Ionis Collaboration Know-How or Ionis Collaboration Patent Right and (b) Metagenomi will promptly disclose to designated Ionis personnel (including Ionis scientific and intellectual property personnel) in writing, and will cause its Affiliates to so disclose, the discovery, development, invention, or creation of any Metagenomi Collaboration Know-How or Metagenomi Collaboration Patent Rights.

10.2. Patent Prosecution.

10.2.1. Ionis-Prosecuted Patent Rights.

(a) As between the Parties, Ionis will have the first right, but not the obligation, to control the Prosecution and Maintenance of all Product-Specific Patent Rights, all Joint Collaboration Patent Rights, and all Ionis Collaboration Patent Rights ("**Ionis-Prosecuted Patent Rights**"). Ionis will be the "Prosecuting Party" with respect to all Ionis-Prosecuted Patent Rights. Ionis will be responsible for and pay all future costs and expenses incurred in connection with the Prosecution and Maintenance of the Ionis-Prosecuted Patent Rights. Ionis will keep Metagenomi reasonably informed as to material developments with respect to the Prosecution and Maintenance of the Ionis-Prosecuted Patent Rights and will provide Metagenomi a reasonable opportunity to review and comment on substantive communications from any patent authority in the Territory regarding the Ionis- Prosecuted Patent Rights, as well as drafts of any substantive filings or responses to be made to such patent authorities in advance of submitting such filings or responses. Ionis will consider Metagenomi's comments regarding such communications and drafts in good faith but is not required to implement such comments. In addition, Ionis will provide Metagenomi with (i) copies of all final substantive filings and responses made to any patent authority with respect to the Ionis-Prosecuted Patent Rights in a timely manner following submission thereof and (ii) notice in advance of abandoning any such Ionis-Prosecuted Patent Rights.

(b) If, during the Term, Ionis decides that it is no longer interested in the Prosecution and Maintenance of a particular Product-Specific Patent Right or Joint Collaboration Patent Right, then it will promptly provide written notice to Metagenomi of such decision; provided that any such notice will be at least [***] in advance of any time based deadlines by which an action must be taken to establish or preserve any such Patent Right. Unless Ionis decides to no longer Prosecute and Maintain a particular Product-Specific Patent Right or Joint Collaboration Patent Right for strategic reasons, Metagenomi may, upon written notice to Ionis, assume the Prosecution and Maintenance of such Patent Right at Metagenomi's sole cost and expense. In such event Metagenomi will be responsible for 100% of the costs and expenses of the Prosecution and Maintenance of such Patent Right, and Metagenomi will thereafter be the "Prosecuting Party" with respect thereto for all purposes under this Agreement.

10.2.2. Metagenomi-Prosecuted Patent Rights. As between the Parties, Metagenomi will have the sole right, but not the obligation, to control the Prosecution and Maintenance of the Licensed Patent Rights and Metagenomi Collaboration Patent Rights, in each case, that are not Product-Specific Patent Rights (such Patent Rights, the "**Metagenomi- Prosecuted Patent Rights**") in accordance with this Agreement. Metagenomi will be the "Prosecuting Party" with respect to all Metagenomi-Prosecuted Patent Rights. Metagenomi will be responsible for and pay all future costs and expenses incurred in connection with the Prosecution and Maintenance of the Metagenomi-Prosecuted Patent Rights. Metagenomi will keep Ionis reasonably informed as to material developments with respect to the Prosecution and Maintenance of the Metagenomi-Prosecuted Patent Rights and will provide Ionis a reasonable opportunity to review and comment on substantive communications from any patent authority in the Territory regarding the Metagenomi-Prosecuted Patent Rights, as well as drafts of any substantive filings or responses to be made to such patent authorities in advance of submitting such filings or responses. Metagenomi will consider Ionis' comments regarding such communications and drafts in

good faith but is not required to implement such comments. In addition, Metagenomi will provide Ionis with (a) copies of all final substantive filings and responses made to any patent authority with respect to the Metagenomi-Prosecuted Patent Rights in a timely manner following submission thereof and (b) notice in advance of abandoning any such Metagenomi-Prosecuted Patent Rights.

10.2.3. **Cooperation.** The non-Prosecuting Party will (a) obtain and deliver to the Prosecuting Party any necessary documents for the Prosecuting Party to exercise its rights to prepare, prosecute, defend, and maintain all Patent Rights pursuant to this Section 10.2 (Patent Prosecution), (b) render all signatures that will be necessary in connection with all such patent filings, and (c) assist the Prosecuting Party in all other reasonable ways that are necessary for the issuance of those Patent Rights for which such Prosecuting Party is responsible, as well as for the Prosecution and Maintenance of such Patent Rights.

10.2.4. **Coordination in Prosecution.** Notwithstanding Metagenomi's right to Prosecute and Maintain the Metagenomi-Prosecuted Patent Rights, the Parties will, and will cause their Affiliates to, cooperate and implement reasonable patent filing and prosecution strategies (including filing divisionals, continuations or otherwise) so that, to the extent reasonably feasible, Product-Specific Patent Rights and other Licensed Patent Rights are pursued in mutually exclusive patent applications.

10.3. **Patent Enforcement.**

10.3.1. **Notification.** Each Party will use reasonable efforts to promptly notify the other in the event of any actual, likely, or suspected infringement of any Ionis-Prosecuted Patent Right or Metagenomi-Prosecuted Patent Right (an "**Infringement**"), including any Infringement that arises as a result of the making, using, offering to sell, selling, or importing of a product that would be competitive with a Licensed System or Licensed Product (a "**Competitive Infringement**").

10.3.2. **Competitive Infringements**.

(a) Ionis will have the first right, but not the obligation, to institute, prosecute, and control a Proceeding to enforce the Ionis-Prosecuted Patent Rights against any Competitive Infringement at its own expense. If Ionis fails to initiate a Proceeding within a period of 90 days after written notice of a Competitive Infringement is first provided by a Party under Section 10.3.1 (Notification), then Metagenomi will have the right to initiate and control a Proceeding to enforce the applicable Patent Right against such Competitive Infringement by counsel of its own choice; provided that if Ionis notifies Metagenomi during such 90-day period that it is electing in good faith not to institute any Proceeding to enforce Ionis-Prosecuted Patent Rights against such Competitive Infringement for strategic reasons, then Metagenomi will not have the right to initiate and control any Proceeding to enforce such Patent Rights against such Competitive Infringement.

(b) Metagenomi will have the first right, but not the obligation, to institute, prosecute, and control a Proceeding to enforce the Metagenomi-Prosecuted Patent Rights against any Competitive Infringement at its own expense. If Metagenomi fails to initiate a Proceeding within a period of 90 days after written notice of a Competitive Infringement is first provided by a Party under Section 10.3.1 (Notification), then Ionis will have the right to initiate and control a Proceeding to

enforce the applicable Patent Right against such Competitive Infringement by counsel of its own choice; provided that if Metagenomi notifies Ionis during such 90-day period that it is electing in good faith not to institute any Proceeding to enforce Metagenomi-Prosecuted Patent Rights against such Competitive Infringement for strategic reasons, then Ionis will not have the right to initiate and control any Proceeding to enforce such Patent Rights against such Competitive Infringement.

10.3.3. **Proceedings for Infringements other than Competitive Infringements.** During the Term, (a) Metagenomi will have the sole right, but not the obligation, to initiate a Proceeding against any Infringement that is not a Competitive Infringement with respect to any Licensed Patent Rights, at Metagenomi's sole discretion and at Metagenomi's sole cost and expense and (b) the Parties will jointly agree upon any initiation of a Proceeding against any Infringement that is not a Competitive Infringement with respect to any Joint Collaboration Patent Right; *provided* that neither Party will unreasonably withhold its agreement to initiate any such Proceeding with respect to any Joint Collaboration Patent Right (as applicable) upon the reasonable request of the other Party.

10.3.4. **Collaboration.** Each Party will provide to the enforcing Party reasonable assistance in any Proceeding brought under this Section 10.3 (Patent Enforcement), at such enforcing Party's request and expense, including to be named in such action if required by Applicable Law to pursue such action. The enforcing Party will keep the other Party regularly informed of the status and progress of such enforcement efforts, will reasonably consider the other Party's comments on any such efforts, including determination of litigation strategy and filing of material papers to the competent court. The non-enforcing Party will be entitled to separate representation in such matter by counsel of its own choice and at its own expense, but such Party will at all times cooperate fully with the enforcing Party. The enforcing Party will not settle any Proceeding that it brought under Section 10.3.2 (Competitive Infringements) in any manner that would limit the rights of the other Party or impose any obligation on the other Party, without the prior written consent of the other Party, which consent will not be unreasonably withheld, conditioned, or delayed.

10.3.5. **Expenses and Recoveries.** Any amount recovered in any Proceeding under this Section 10.3 (Patent Enforcement), including any amount recovered in any settlement of such Proceeding, will first be used [***] and will thereafter be for (a) with respect to any Competitive Infringement, the benefit of [***]; *provided*, *however*, that to the extent any such amount is [***] then such amount will, [***] and (b) with respect to any Infringement that is not a Competitive Infringement, for the benefit of [***].

10.4. **Defense of Claims Brought by Third Parties.** If any Third Party brings a claim or otherwise asserts that a Licensed Product or Licensed System infringes such Third Party's Patent Rights or misappropriates such Third Party's Know-How (each, a "**Third Party Infringement Claim**"), then the Party first having notice of the claim or assertion will promptly notify the other Party in writing. Subject to [***], [***] will have the sole right, but not the obligation, to undertake and control the defense or settlement of any Third Party Infringement Claim using counsel of its choice, at its cost and expense. If [***] is named as a defendant in such suit, [***] will have the right to participate in such defense and settlement with its own counsel, at its cost. [***] will not enter into any settlement of any Third Party Infringement Claim that is instituted or threatened to be instituted against [***] without [***] prior written consent, which will not be unreasonably withheld, conditioned, or delayed; except that such consent will not be required if such settlement includes a release of all liability in favor of [***] or an assumption of any unreleased liability by [***]. As

requested by [***], [***] will provide reasonable cooperation and assistance to [***] in connection with [***] control of the defense or settlement of a Third Party Infringement Claim. Such cooperation and assistance will include executing all necessary and proper documents and taking such actions as will be appropriate to allow [***] to control the defense and settlement of such Third Party Infringement Claim. [***] will reimburse [***]; except that [***] will have no obligation to [***] will keep [***] reasonably informed of the progress of any Third Party Infringement Claim. To the extent reasonable, both Parties will cooperate in good faith to (a) ensure that [***] and (b) [***].

10.5. **Patent Listing.** Ionis will have the sole right, but not the obligation, to determine which Ionis- Prosecuted Patent Rights will be listed in connection with the Regulatory Approval for a Licensed Product pursuant to 21 U.S.C. § 355(b)(1)(G), any similar statutory or regulatory requirement enacted in the future regarding biologic products, or any similar statutory or regulatory requirement in any non-U.S. country or other regulatory jurisdiction. The Parties will discuss and mutually agree on which Metagenomi-Prosecuted Patent Rights will be listed in connection with the Regulatory Approval for a Licensed Product pursuant to 21 U.S.C. § 355(b)(1)(G), any similar statutory or regulatory requirement enacted in the future regarding biologic products, or any similar statutory or regulatory requirement in any non-U.S. country or other regulatory jurisdiction.

10.6. **Common Ownership Legislation.** Notwithstanding anything to the contrary in this Article 10 (Intellectual Property), neither Party will have the right to make an election under the Common Ownership Legislation when exercising its rights under this Article 10 (Intellectual Property) without the prior written consent of the other Party, which will not be unreasonably withheld, conditioned, or delayed. With respect to any such permitted election, the Parties will use reasonable efforts to cooperate and coordinate their activities with respect to any submissions, filings, or other activities in support thereof. The Parties acknowledge and agree that this Agreement is a "joint research agreement" as defined in the Common Ownership Legislation. Notwithstanding the foregoing, the other Party's consent under this Section 10.6 (Common Ownership Legislation) will not be required in connection with an obviousness-type double patenting rejection in any patent application claiming a Licensed System, Licensed Product, or uses thereof.

10.7. **Patent Term Extension.**

10.7.1. **Ionis-Prosecuted Patent Rights.** Ionis will be solely responsible for obtaining patent term restoration for the Ionis-Prosecuted Patent Rights in any country in the Territory under any statute or regulation equivalent or similar to 35 U.S.C. § 156, where applicable to a Licensed Product. Ionis will determine which relevant Ionis-Prosecuted Patent Rights will be extended (including by filing supplementary protection certificates and any other extensions that are now or in the future become available). Metagenomi will abide by Ionis' determination and cooperate, as reasonably requested by Ionis, in connection with the foregoing (including by providing appropriate information and executing appropriate documents).

10.7.2. **Metagenomi-Prosecuted Patent Rights.** The Parties will mutually agree on the strategy for obtaining patent term restoration for the Metagenomi-Prosecuted Patent Rights in any country in the Territory under any statute or regulation equivalent or similar to 35 U.S.C. § 156, where applicable to a Licensed Product. The Parties will mutually agree on which relevant Metagenomi-Prosecuted Patent Rights will be extended (including by filing supplementary protection certificates and any other extensions that are now or in the future become available) and will cooperate with each other in connection with the foregoing (including by providing appropriate information and executing appropriate documents).

10.8. **Recording**. If Ionis deems it necessary or desirable to register or record this Agreement or evidence of this Agreement with any patent office or other appropriate Governmental Authority in one or more jurisdictions in the Territory, then Metagenomi will reasonably cooperate to execute and deliver to Ionis any documents accurately reflecting or evidencing this Agreement that are necessary or desirable, in Ionis' reasonable judgment, to complete such registration or recordation. Ionis will [***] in complying with the provisions of this Section 10.8 (Recording).

10.9. **Unitary Patent System**. Ionis will have the exclusive right to opt-in or opt-out of the EU Unitary Patent System for all Licensed Patent Rights and Joint Collaboration Patent Rights. For clarity, "to opt-in or opt-out" refers to both the right to have a European patent application or an issued European patent registered to have unitary effect within the meaning of Regulation (EU) No 1257/2012 of December 17, 2012 as well as the Agreement on a Unified Patent Court as of February 19, 2013; and to the right to opt-in or opt-out from the exclusive competence of the Unified Patent Court in accordance with Article 83(3) of that Agreement on a Unified Patent Court. Without limiting the generality of the foregoing, unless a Party or its Affiliate has expressly opted-in to the EU Unitary Patent System with respect to a given Patent Right, the other Party will not initiate any action under the EU Unitary Patent System without such Party's prior written approval, such approval to be granted or withheld in such Party's sole discretion.

10.10. **Trademarks**. As between the Parties, all trademarks and trade dress rights used in connection with the Commercialization of the Licensed Products in the Field in the Territory will be owned exclusively by Ionis.

10.11. **Common Interest**. All information exchanged between the Parties regarding the Prosecution and Maintenance, and enforcement and defense, of the Patent Rights under this Article 10 (Intellectual Property) will be deemed Confidential Information of the disclosing Party. In addition, the Parties acknowledge and agree that, with regard to such Prosecution and Maintenance, and enforcement and defense of the Patent Rights under this Article 10 (Intellectual Property), the interests of the Parties as collaborators and licensor and licensee are to obtain the strongest patent protection possible, and as such, are aligned and are legal in nature. The Parties agree and acknowledge that they have not waived, and nothing in this Agreement constitutes a waiver of, any legal privilege concerning the Patent Rights under this Article 10 (Intellectual Property), including privilege under the common interest doctrine and similar or related doctrines. Notwithstanding anything to the contrary contained herein, to the extent a Party has a good faith belief that any information required to be disclosed by such Party to the other Party under this Article 10 (Intellectual Property) is protected by attorney-client privilege or any other applicable legal privilege or immunity, such Party will not be required to disclose such information and the Parties will in good faith cooperate to agree upon a procedure (including entering into a specific common interest agreement, disclosing such information on a "for counsel eyes only" basis or similar procedure) under which such information may be disclosed without waiving or breaching such privilege or immunity.

Article 11
Confidentiality

11.1. **Confidential Information**.

11.1.1. **General.** Each Party will maintain all Confidential Information disclosed to it or its representatives (the "**Receiving Party**") by or on behalf the other Party (the "**Disclosing Party**") in strict confidence during the Term of this Agreement and for a period of [***] after the expiration or termination of this Agreement; *provided* that any Confidential

Information of either Party that constitutes a trade secret will continue to be subject to the terms of this Article 11 (Confidentiality) in perpetuity, so long as such information remains a trade secret. Each Party will use all such disclosed Confidential Information only to the extent necessary for purposes of this Agreement, including exercising the licenses and rights hereunder, and will not disclose such Confidential Information to any Third Party without the prior written consent of the Disclosing Party, except as permitted under this Agreement. Each Party will notify the other Party promptly on discovery of any unauthorized use or disclosure by a Party of the other Party's Confidential Information, including the other Party's trade secrets.

11.1.2. **Confidential Information of Each Party**. All information disclosed prior to the Effective Date pursuant to the Confidentiality Agreement between the Parties dated [***] (the "**Confidentiality Agreement**"), by Metagenomi to Ionis will be Confidential Information of Metagenomi and by Ionis to Metagenomi will be Confidential Information of Ionis. All Ionis Royalty Reports and reports identifying Ionis Product Development Milestone Events, Ionis Product Regulatory Milestone Events, and Ionis Product Sales Milestone Events will be considered Confidential Information of Ionis. All Metagenomi Royalty Reports and reports identifying Metagenomi Product Milestone Events will be the Confidential Information of Metagenomi. The Product-Specific Know-How, Joint Collaboration Know-How, and the non-disclosed terms of this Agreement will be the Confidential Information of each Party.

11.1.3. **Exceptions to Confidentiality**. The following information will not be Confidential Information of the Disclosing Party, and accordingly the obligations of each Receiving Party imposed by Section 11.1.1 (General) will not apply to any such information that: (a) was known to the Receiving Party without an obligation to keep such information confidential prior to the Effective Date other than as a result of disclosure under any other agreement between the Parties, including the Confidentiality Agreement (as demonstrated by documentary evidence); (b) is or becomes generally available to the public through means other than an unauthorized disclosure by the Receiving Party, its Affiliates, or any agents to whom it or they disclosed such information; (c) was or subsequently is disclosed to the Receiving Party without restriction by a Third Party having a *bona fide* right to disclose such Confidential Information without breaching any obligation to the Disclosing Party; or (d) is developed independently by the Receiving Party without benefit of or recourse to any of the Disclosing Party's Confidential Information (as demonstrated by documentary evidence). For clarity, (i) specific aspects or details of Confidential Information will not be deemed to be within the public domain or in the possession of the Receiving Party merely because the Confidential Information is embraced by more general information in the public domain or in the possession of the Receiving Party; and (ii) any combination of Confidential Information will not be considered in the public domain or in the possession of the Receiving Party merely because individual elements of such Confidential Information are in the public domain or in the possession of the Receiving Party unless the combination and its principles are in the public domain or in the possession of the Receiving Party.

11.1.4. **Permitted Disclosures**. The Receiving Party may disclose Confidential Information of the Disclosing Party to the extent (and solely to the extent) that such disclosure is reasonably necessary in the following instances:

(a) (i) the prosecution and maintenance of Licensed Patent Rights and Joint Collaboration Patent Rights, in each case, in accordance with the terms of this Agreement; or (ii) Regulatory Submissions and other filings with Governmental Authorities (including Regulatory Authorities), as necessary for the Exploitation of a Licensed Product;

(b) disclosure of the existence and applicable terms of this Agreement and the status and results of Exploitation of one or more Licensed Products to actual or *bona fide* potential investors, acquirors, Sublicensees, lenders, and other financial or commercial partners (including in connection with any royalty factoring transaction), and their respective attorneys, accountants, banks, investors, and advisors, solely for the purpose of evaluating or carrying out an actual or potential investment, acquisition, sublicense, debt transaction, or collaboration; *provided* that, in each such case, (i) such Persons are bound by obligations of confidentiality, non-disclosure, and non-use provisions at least as restrictive or protective of the Parties as those set forth in this Agreement or otherwise customary for such type and scope of disclosure, and (ii) that any such disclosure is limited to the maximum extent practicable for the particular context in which it is being disclosed; *provided* that in no event will a disclosure of Confidential Information under this Section 11.1.4(b) be made, with respect to Ionis as the Receiving Party, to a [***] or with respect to Metagenomi as the Receiving Party, to an [***], in each case, without the prior written consent of the other Party;

(c) to comply with Applicable Law (whether generally or in pursuit of an application for listing of securities) including the United States Securities and Exchange Commission or equivalent foreign agency or regulatory body, or otherwise required by judicial or administrative process; *provided* that in each such event, as promptly as reasonably practicable and to the extent not prohibited by Applicable Law or judicial or administrative process, such Party will notify the other Party of such required disclosure and provide a draft of the disclosure to the other Party reasonably in advance of such filing or disclosure for the other Party's review and comment. The non-disclosing Party will provide any comments as soon as practicable, and the disclosing Party will consider in good faith any timely comments provided by the non-disclosing Party; *provided* that the disclosing Party may or may not accept such comments in its sole discretion. Confidential Information that is disclosed in order to comply with Applicable Law or by judicial or administrative process pursuant to this Section 11.1.4(c), in each case, will remain otherwise subject to the confidentiality and non-use provisions of this Article 11 (Confidentiality) with respect to the Party disclosing such Confidential Information, and such Party will take all steps reasonably necessary, including seeking of confidential treatment or a protective order for a period of at least [***] (to the extent permitted by Applicable Law or Governmental Authority), to ensure the continued confidential treatment of such Confidential Information, and each Party will be responsible for its own legal and other external costs in connection with any such filing or disclosure pursuant to this Section 11.1.4(c);

(d) to prosecute or defend litigation so long as there is [***] prior written notice given by the Receiving Party before filing, and to enforce Patent Rights in connection with the Receiving Party's rights and obligations pursuant to this Agreement; and

(e) to allow the Receiving Party to exercise its rights and perform its obligations hereunder; *provided* that such disclosure is covered by terms of confidentiality and non-use at least as restrictive as those set forth herein.

If and whenever any Confidential Information is disclosed in accordance with this Section 11.1.4 (Permitted Disclosures), such disclosure will not cause any such information to cease to be Confidential Information except to the extent that such disclosure results in a public disclosure of such information (other than by breach of this Agreement).

11.2. **No Use of Name**. Neither Party will use the other Party's name, logo, or Trademarks in any promotional materials or advertising without the prior written consent of the other Party, except as provided under this Agreement or required by Applicable Law, in which case the Party disclosing such name, logo, or Trademarks will give advance notice of such use and otherwise comply with Section 11.1.4(c).

11.3. **Residual Knowledge**. Notwithstanding any provision to the contrary set forth in this Agreement, a Receiving Party will not be liable for the use of any knowledge, technique, experience, or Know-How that is retained in the unaided memory of any officers, directors, agents, contractors, or employees of such Receiving Party after having access to such Confidential Information ("**Residual Knowledge**"), *provided* that such officer, director, agent, contractor, or employee (a) has not intentionally memorized such Residual Knowledge, (b) is not aware at the time of use that such Residual Knowledge is the Confidential Information of the Disclosing Party, and (c) has not been directed or encouraged by the Receiving Party to memorize such Residual Knowledge. Any use made by the Receiving Party of any such Residual Knowledge is on an "as is, where is" basis, with all faults and all representations and warranties disclaimed and at its sole risk. For clarity, no license under any Patent Right is granted pursuant to this Section 11.3 (Residual Knowledge).

11.4. **Public Announcements and Subsequent Disclosures**. Except as may be expressly permitted under Section 11.1.4 (Permitted Disclosures), neither Party will make any public announcement regarding this Agreement without the prior written approval of the other Party, except for either Party's references to the other as the licensor or licensee (as applicable) or a collaboration partner under this Agreement. For clarity, Ionis may make scientific publications or public announcements concerning Ionis' Exploitation of any Licensed Product under this Agreement pursuant to Section 11.5.1 (Ionis Publications); *provided* that, except as permitted under Section 11.1.4 (Permitted Disclosures), Ionis will not disclose any of Metagenomi's Confidential Information in any such publication or announcement without obtaining Metagenomi's prior written consent to do so. The Parties may each issue, or, by agreement of the Parties, may jointly issue, a press release announcing the signing of this Agreement after the Effective Date. The press release(s) to be issued by the Parties on or after the Effective Date will be substantially in the form of the press release(s) attached hereto as Schedule 11.4 (Press Release(s)). After the issuance of any such press release or any other permitted public disclosure by a Party, each Party may make subsequent public disclosures reiterating such information without having to obtain the other Party's prior consent and approval so long as the information in such press release or other public announcement remains true, correct, and the most current information with respect to the subject matters set forth therein.

11.5. **Publications**.

11.5.1. **Ionis Publications.**

(a) During the Collaboration Term, Ionis will submit to Metagenomi for review any proposed academic, scientific, or medical publication or public presentation related to any Licensed System or Licensed Product or to any activities conducted pursuant to this Agreement. Metagenomi will review such publication or presentation for purposes of determining whether any portion of the proposed

publication or presentation contains Metagenomi's Confidential Information. Ionis will submit written copies of such proposed publication or presentation to Metagenomi no later than [***] before submission for publication or presentation (or [***] in advance in the case of an abstract). Metagenomi will provide its comments with respect to such publications and presentations within [***] after its receipt of such written copy (or [***] in the case of an abstract). Metagenomi will have the right: (i) to require the removal of its Confidential Information from any such publication or presentation and (ii) to request a reasonable delay in publication or presentation in order to protect patentable information. If Metagenomi requests such a delay, then Ionis will delay submission or presentation for a period of [***] after its provision of the copy of the proposed publication or disclosure to enable patent applications protecting Metagenomi's rights in such information. Ionis will comply with standard academic practice regarding authorship of scientific publications and recognition of contribution of other parties in any publication.

(b) Unless otherwise agreed in a Co-Development and Co-Commercialization Agreement, after the Collaboration Term, Ionis will have the right upon at least [***] prior written notice to Metagenomi, without any required consent or review from Metagenomi but subject to this Article 11 (Confidentiality), to publish or publicly disclose the scientific results of any activities conducted with respect to any Licensed System or Licensed Product or any other activities conducted pursuant to this Agreement; *provided* that if Metagenomi reasonably believes that such disclosure would adversely affect the use of any Licensed System for applications outside of the Field, then Ionis will reasonably consider any comments to such disclosure provided by Metagenomi in such [***] period.

11.5.2. **Metagenomi Publications**. During the Term, Metagenomi will not publish or publicly disclose the scientific results of any activities it conducts that are specific to the Licensed System or Licensed Product in the Field, or any other activities conducted pursuant to this Agreement and exclusively licensed to Ionis, in each case, without the prior written consent of Ionis (such consent not to be unreasonably withheld, conditioned, or delayed).

Article 12
Representations, Warranties, and Covenants

12.1. **Mutual Representations and Warranties**. As of the Effective Date, Metagenomi and Ionis each hereby represents and warrants to the other as follows:

12.1.1. It is a corporation duly organized, validly existing, and in good standing under the laws of the jurisdiction of its organization, and has all requisite power and authority, corporate or otherwise, to execute, deliver, and perform this Agreement.

12.1.2. The execution and delivery of this Agreement and the performance by it of the transactions contemplated hereby have been duly authorized by all necessary corporate action and will not violate (a) such Party's certificate of incorporation or bylaws (or equivalent charter or organizational documents), (b) any agreement, instrument or contractual obligation to which such Party is bound, (c) any requirement of any Applicable Law, or (d) any order, writ, judgment, injunction, decree, determination, or award of any court or Governmental Authority presently in effect applicable to such Party.

12.1.3. It is not under any obligation, contractual or otherwise, to any Person that conflicts with or is inconsistent in any respect with the terms of this Agreement or that will impede the diligent and complete fulfillment of its obligations hereunder.

12.1.4. There is no action or proceeding pending or, to the knowledge of such Party, threatened that could reasonably be expected to impair or delay the ability of such Party to perform its obligations under this Agreement.

12.1.5. All consents, approvals, and authorizations from all Governmental Authorities or other Third Parties required to be obtained by such Party in connection with this Agreement, including the grant of any licenses, have been obtained.

12.2. **Additional Representations of Metagenomi**. As of the Effective Date and the date on which each new target becomes a Collaboration Target pursuant to Section 2.1.1(b) (Second Wave 1 Target) or Section 2.1.4(c) (Effects if a Proposed Target is Available) (unless otherwise noted below), Metagenomi further represents and warrants to Ionis, that, except as set forth on Schedule 12.2 (Metagenomi Disclosure Schedule) (which schedule may be updated each time a target becomes a Collaboration Target):

12.2.1. To Metagenomi's Knowledge, the practice of the Warranty Technology and the Metagenomi Platform as contemplated by this Agreement will not (a) constitute misappropriation of any Know-How of any Third Party, or (b) infringe any Patent Rights of any Third Party.

12.2.2. Metagenomi Controls all Patent Rights and Know-How owned or in-licensed by Metagenomi that are necessary to Exploit licensed systems discovered using the Metagenomi Platform in the Field. For purposes of this Section 12.2.2, "licensed systems" mean a Gene Editing protein and a Guide RNA that is designed to modulate a target.

12.2.3. Metagenomi is the sole and exclusive owner or, if applicable, exclusive licensee, of all Warranty Technology, all of which is free and clear of any liens, charges, restrictions, and encumbrances (other than licenses granted to Third Parties that are not inconsistent with the options, rights, and licenses granted to Ionis hereunder), and neither any assignment, license, sublicense, or other grant of any interest in or options to the Warranty Technology granted by Metagenomi or its Affiliates to any Third Party, nor any assignment, license, sublicense, or other grant of any interest in or options to the Warranty Technology granted by any Third Party to Metagenomi or its Affiliates conflicts with the options, rights, and licenses granted to Ionis hereunder, and Metagenomi is entitled to grant all rights and licenses under the Warranty Technology that it purports to grant to Ionis under this Agreement.

12.2.4. Schedule 1.146 (Licensed Patent Rights) sets forth a true, correct, and complete list of all Licensed Patent Rights as of the Effective Date. To the extent a Licensed Patent Right is omitted from Schedule 1.146 (Licensed Patent Rights) as of the Effective Date, Metagenomi agrees and covenants to add such omitted Licensed Patent Right to Schedule 1.146 (Licensed Patent Rights), and that any such added Licensed Patent Right is deemed included in the licenses granted to Ionis pursuant to Section 3.1 (License Grants to Ionis) as of the Effective Date; *provided* that, for clarity, any Patent Right that otherwise meets the definition of Licensed Patent Rights will be deemed a Licensed Patent Right and included in the licenses granted to Ionis pursuant to Section 3.1 (License Grants to Ionis) from the time such Patent Right existed whether or not it is included on Schedule 1.146 (Licensed Patent Rights).

12.2.5. All issued Patent Rights within the Warranty Technology are in full force and effect and, to Metagenomi's Knowledge, have been Prosecuted and Maintained from the respective patent offices in accordance with Applicable Law. Metagenomi has not received any written claims from any Third Party that any such issued Patent Rights are invalid or unenforceable.

12.2.6. With respect to the Patent Rights within the Warranty Technology, each patent properly identifies each and every inventor of the claims thereof as determined in accordance with the laws of the jurisdiction in which such patent is issued or such application is pending, Metagenomi has obtained assignments from any and all inventors of all inventorship rights relating to such Patent Rights, all such assignments of inventorship rights relating to such Patent Rights have been properly executed and recorded in the relevant U.S. and foreign patent offices, and each such inventor has complied in all material respects with all applicable duties of candor and good faith in dealing with any patent office, including the duty to disclose to any applicable patent office all information known to be material to patentability.

12.2.7. To Metagenomi's Knowledge, no circumstances or grounds exist that would invalidate, reduce or eliminate, in whole or in part, the enforceability, validity or scope of any Patent Rights within the Warranty Technology.

12.2.8. Other than the Metagenomi In-License Agreements (if any), there is no agreement between Metagenomi or any of its Affiliates and any Third Party pursuant to which Metagenomi or its Affiliate has acquired Control of any of the Licensed Technology, and no Third Party has any rights, title, or interests in or to, or any license under, any of the Licensed Technology.

12.2.9. All Metagenomi In-License Agreements (if any) are in full force and effect. Neither Metagenomi nor its Affiliates nor, to Metagenomi's Knowledge, the Third Party licensor in a Metagenomi In-License Agreement is in default with respect to a material obligation under such Metagenomi In-License Agreement, as applicable, and no such party has claimed or has grounds upon which to claim that the other party is in default with respect to any obligation or permit, termination, modification, or acceleration under any Metagenomi In-License Agreement.

12.2.10. Metagenomi and its Affiliates have taken commercially reasonable measures consistent with industry practices to protect the secrecy, confidentiality, and value of all Warranty Technology that constitutes trade secrets under Applicable Law (including requiring all employees, consultants, and independent contractors to execute binding and enforceable agreements requiring all such employees, consultants, and independent contractors to maintain the confidentiality of such Warranty Technology) and, to Metagenomi's Knowledge, such Warranty Technology has not been used, disclosed to, or discovered by any Third Party except pursuant to such confidentiality agreements and to Metagenomi's Knowledge, there has not been a breach by any party to such confidentiality agreements.

12.2.11. The Warranty Technology have not been created pursuant to, and are not subject to, any funding agreement with any Governmental Authority or any Third Party, and are not subject to the requirements of the Bayh-Dole Act or any similar provision of any Applicable Law.

12.2.12. To Metagenomi's Knowledge, no Third Party has infringed, misappropriated, or otherwise violated, or is currently infringing, misappropriating, or otherwise violating any Warranty Technology, and neither Metagenomi nor its Affiliates have brought any claim or sent any notice alleging any such infringement, misappropriation, or violation.

12.2.13. There are no judgments or settlements against Metagenomi or any of its Affiliates, any pending or, to Metagenomi's Knowledge, threatened claims or litigation in writing, or written offers for Metagenomi to acquire or license any Third Party Intellectual Property Rights, in each case, in connection with the Warranty Technology or the practice thereof, or relating to the transactions contemplated by this Agreement.

12.2.14. Metagenomi has not employed (and has not used a Subcontractor that has employed) any Person debarred by the FDA (or subject to a similar sanction of EMA or foreign equivalent), or any Person that is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMA or foreign equivalent), in any capacity in connection with this Agreement, the Warranty Technology, or the Metagenomi Platform.

12.3. **Covenants of Metagenomi**. Metagenomi covenants to Ionis as follows:

12.3.1. Metagenomi and its Affiliates will maintain Control of all Licensed Technology and Licensed Systems owned by Metagenomi or its Affiliates at any time during the Term.

12.3.2. Metagenomi and its Affiliates will not grant or permit to be attached, any lien, security interest, or other encumbrance with respect to any Licensed Technology which would adversely affect the rights granted to Ionis hereunder.

12.3.3. Neither Metagenomi nor any of its Affiliates will effect any corporate restructuring or enter into any new agreement or otherwise obligate itself to any Third Party, in each case, in a manner that conflicts with or otherwise adversely affects the options, rights, and licenses granted to Ionis hereunder.

12.3.4. Metagenomi will maintain and not breach, and will cause its Affiliates to maintain and not breach, the Metagenomi In-License Agreements, if any, or any license agreements that come into effect after the Effective Date pursuant to which Ionis receives a sublicense hereunder.

12.3.5. [***].

12.3.6. [***].

12.3.7. Metagenomi will, and will ensure that its Affiliates, Sublicensees, and Subcontractors, obtain agreements from any and all Persons involved in or performing any Development by or on behalf of Metagenomi that assign such Persons' rights, title, and interests in and to any Licensed Technology to Metagenomi prior to any such person performing such activities.

12.3.8. Metagenomi will, and will ensure that its Affiliates, comply with Applicable Law in connection with the performance of its and its Affiliates' activities under this Agreement.

12.3.9. Metagenomi will not, and will ensure that its Affiliates will not, take any action or enter into any agreement with any Third Party that conflicts with or in any way relinquishes or otherwise diminishes the rights granted to Ionis under this Agreement.

12.3.10. In performing under this Agreement, Metagenomi and its Affiliates agree to comply with all applicable anti-corruption laws, including the Foreign Corrupt Practices Act of 1977, as amended from time-to-time; the anti-corruption laws of the Territory; and all laws enacted to implement the Organization for Economic Cooperation and Development Convention on Combating Bribery of Foreign Officials in International Business Transactions.

12.3.11. Metagenomi will not directly or indirectly offer or pay, or authorize such offer or payment of, any money, or transfer anything of value, to improperly seek to influence: (a) any elected or appointed government official (e.g., a member of a ministry of health); (b) any employee or person acting for or on behalf of a Governmental Authority; (c) any political party officer, employee, or person acting for or on behalf of a political party or candidate for public office; (d) an employee or person acting for or on behalf of a public international organization; or (e) any person otherwise categorized as a government official under local law.

12.3.12. Neither Metagenomi nor its Affiliates will export, transfer, or sell any Licensed Product to any country or territory except in compliance with Applicable Law.

12.3.13. Metagenomi will not, to Metagenomi's Knowledge, engage directly or indirectly, in any capacity in connection with this Agreement any Person who either has been debarred by the FDA, is the subject of a conviction described in Section 306 of the FD&C Act or is subject to any such similar sanction. Metagenomi will inform Ionis in writing promptly if it or any Person engaged by Metagenomi or any of its Affiliates who is performing services under this Agreement or any ancillary agreements is debarred or is the subject of a conviction described in Section 306 of the FD&C Act, or if any action, suit, claim, investigation or legal or administrative proceeding is pending or, to Metagenomi's Knowledge, is threatened, relating to the debarment or conviction of Metagenomi, any of its Affiliates or any such Person performing services hereunder or thereunder.

12.3.14. Metagenomi will not, and will cause its Affiliates and Sublicensees not to, use or practice the Ionis Background Technology, including the Ionis Proprietary Toolbox of Chemical Modifications, except in accordance with this Agreement.

12.4. **Additional Representations of Ionis**. As of each Ionis IP Option Effective Date, Ionis represents and warrants to Metagenomi that, except as set forth on Schedule 12.4 (Ionis Disclosure Schedule) (which schedule may be updated each time a Proposed Metagenomi Target becomes a Metagenomi Target):

12.4.1. To Ionis' Knowledge, the practice of the Ionis Background Technology as contemplated by this Agreement will not (a) constitute misappropriation of any Know-How of any Third Party, or (b) infringe any Patent Rights of any Third Party.

12.4.2. Ionis is the owner, or licensee, of all Ionis Background Technology, all of which is free and clear of any liens, charges, restrictions, and encumbrances (other than licenses granted to Third Parties that are not inconsistent with the options, rights, and licenses granted to Metagenomi hereunder), and neither any assignment, license, sublicense, or other grant of any interest in or options to the Ionis Background Technology granted by Ionis or its

Affiliates to any Third Party, nor any assignment, license, sublicense, or other grant of any interest in or options to the Ionis Background Technology granted by any Third Party to Ionis or its Affiliates conflicts with the options, rights, and licenses granted to Metagenomi hereunder, and Ionis is entitled to grant all rights and licenses under the Ionis Background Technology that it purports to grant to Metagenomi under this Agreement.

12.4.3. The Ionis Background Technology have not been created pursuant to, and are not subject to, any funding agreement with any Governmental Authority or any Third Party, and are not subject to the requirements of the Bayh-Dole Act or any similar provision of any Applicable Law.

12.4.4. To Ionis' Knowledge, no Third Party has infringed, misappropriated, or otherwise violated, or is currently infringing, misappropriating, or otherwise violating any Ionis Background Technology in a manner that would be reasonably likely to adversely affect Metagenomi, and neither Ionis nor its Affiliates have brought any claim or sent any notice alleging any such infringement, misappropriation, or violation.

12.4.5. There are no judgments or settlements against Ionis or any of its Affiliates, any pending or, to Ionis' Knowledge, threatened claims or litigation in writing, or written offers for Ionis to acquire or license any Third Party Intellectual Property Rights, in each case, in connection with the Ionis Background Technology or the practice thereof, or relating to the transactions contemplated by this Agreement.

12.4.6. Ionis has not employed (and has not used a Subcontractor that has employed) any Person debarred by the FDA (or subject to a similar sanction of EMA or foreign equivalent), or any Person that is the subject of an FDA debarment investigation or proceeding (or similar proceeding of EMA or foreign equivalent), in any capacity in connection with this Agreement or the Ionis Background Technology.

12.5. **Covenants of Ionis**. Ionis covenants to Metagenomi as follows:

12.5.1. Neither Ionis nor any of its Affiliates will effect any corporate restructuring or enter into any new agreement or otherwise obligate itself to any Third Party, in each case, in a manner that conflicts with or otherwise adversely affects the options, rights, and licenses granted to Metagenomi hereunder.

12.5.2. Ionis will, and will ensure that its Affiliates, comply with all Applicable Law in connection with the performance of its and its Affiliates' activities under this Agreement.

12.5.3. Ionis will not, and will ensure that its Affiliates will not, take any action or enter into any agreement with any Third Party that conflicts with or in any way relinquishes or otherwise diminishes the rights granted to Metagenomi under this Agreement.

12.5.4. In performing under this Agreement, Ionis and its Affiliates agree to comply with all applicable anti-corruption laws, including the Foreign Corrupt Practices Act of 1977, as amended from time-to-time; the anti-corruption laws of the Territory; and all laws enacted to implement the Organization for Economic Cooperation and Development Convention on Combating Bribery of Foreign Officials in International Business Transactions.

12.5.5. Ionis will not directly or indirectly offer or pay, or authorize such offer or payment of, any money, or transfer anything of value, to improperly seek to influence: (a) any elected or appointed government official (e.g., a member of a ministry of health); (b) any employee or person acting for or on behalf of a Governmental Authority; (c) any political party officer, employee, or person acting for or on behalf of a political party or candidate for public office; (d) an employee or person acting for or on behalf of a public international organization; or (e) any person otherwise categorized as a government official under local law.

12.5.6. Neither Ionis nor its Affiliates will export, transfer, or sell any Licensed Product to any country or territory except in compliance with Applicable Law.

12.5.7. Ionis will not, to Ionis' Knowledge, engage directly or indirectly, in any capacity in connection with this Agreement any Person who either has been debarred by the FDA, is the subject of a conviction described in Section 306 of the FD&C Act or is subject to any such similar sanction. Ionis will inform Metagenomi in writing promptly if it or any Person engaged by Ionis or any of its Affiliates who is performing services under this Agreement or any ancillary agreements is debarred or is the subject of a conviction described in Section 306 of the FD&C Act, or if any action, suit, claim, investigation or legal or administrative proceeding is pending or, to Ionis' Knowledge, is threatened, relating to the debarment or conviction of Ionis, any of its Affiliates or any such Person performing services hereunder or thereunder.

12.5.8. Ionis will not, and will cause its Affiliates not to, use or practice the Licensed Technology, except in accordance with this Agreement.

12.6. **Warranty Disclaimer**. EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF TITLE, NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. IN PARTICULAR, IONIS DOES NOT MAKE ANY REPRESENTATION OR EXTEND ANY WARRANTY THAT THE LICENSED SYSTEMS OR LICENSED PRODUCTS WILL BE SUCCESSFULLY DEVELOPED OR COMMERCIALIZED HEREUNDER.

Article 13
Indemnification; Limitation of Liability; Insurance

13.1. **Indemnification of Metagenomi by Ionis**. Subject to Section 13.4 (Conditions to Indemnification), Ionis will defend, indemnify, and hold harmless Metagenomi and its Affiliates, Sublicensees, Subcontractors, and their respective employees, officers, and directors ("**Metagenomi Indemnitees**") from and against any and all liability, damage, loss, cost, or expense of any nature (including reasonable attorney's fees and litigation expenses) ("**Losses**") incurred or imposed upon the Metagenomi Indemnitees in connection with any claims, suits, actions, demands, proceedings, causes of action, or judgments resulting from a Third Party claim ("**Third Party Claims**") arising out of or relating to:

13.1.1. the Exploitation of any Licensed System or Licensed Product by or on behalf of any Ionis Indemnitee other than (a) claims by one or more Third Parties relating to patent infringement arising out of the practice of the Licensed Patent Rights in accordance with this Agreement, (b) claims by Third Parties relating to misappropriation of trade secrets or other Intellectual Property Rights arising out of the practice of the Licensed Know-How in accordance with this Agreement, or (c) Losses shared pursuant to Section 13.3 (Losses for the Co-Co Products);

13.1.2. the breach by any Ionis Indemnitee of any term of this Agreement; or

13.1.3. the negligence or willful misconduct of any Ionis Indemnitee except, in each case (Section 13.1.1 through Section 13.1.3), to the extent that any such claim results or arises from a matter for which Metagenomi is obligated to indemnify Ionis under Section 13.2 (Indemnification of Ionis by Metagenomi).

13.2. **Indemnification of Ionis by Metagenomi**. Subject to Section 13.4 (Conditions to Indemnification), Metagenomi will defend, indemnify, and hold harmless Ionis and its Affiliates, Sublicensees, and Subcontractors, and their respective employees, officers, and directors ("**Ionis Indemnitees**") from and against any and all Losses incurred or imposed upon the Ionis Indemnitees or any one of them in connection with one or more Third Party Claims arising out of or relating to:

13.2.1. any claim that the composition of matter [***] of a Gene Editing protein to edit gene targets (but not to edit the Collaboration Targets specifically) infringes or misappropriates any issued Patent Right or other Intellectual Property Right owned or possessed by any Third Party;

13.2.2. the Exploitation of any Licensed System that is included within a Licensed Product by any Metagenomi Indemnitee, other than Losses shared pursuant to Section 13.3 (Losses for the Co-Co Products) and any amounts [***];

13.2.3. the Exploitation of any Licensed System or Licensed Product by or on behalf of any Metagenomi Indemnitee prior to the Effective Date and after termination of this Agreement;

13.2.4. the Exploitation of any Metagenomi Product by or on behalf of any Metagenomi Indemnitee;

13.2.5. the breach by any Metagenomi Indemnitee of any term of this Agreement; or

13.2.6. the negligence or willful misconduct of any Metagenomi Indemnitee except, in each case (Section 13.2.1 through Section 13.2.6), to the extent that any such claim results or arises from a matter for which Ionis is obligated to indemnify Metagenomi under Section 13.1 (Indemnification of Metagenomi by Ionis).

13.3. **Losses for the Co-Co Products**. All Losses incurred by either Party arising from any Third Party Claim relating to the Exploitation of the Co-Co Products will be shared by the Parties pursuant to the Co-Development and Co-Commercialization Agreement; *provided* that the Parties will not share Losses of a Party or its Affiliates to the extent such Losses are (a) caused by a breach of this Agreement by a Party or Affiliate or (b) caused by gross negligence or willful misconduct of a Party or its Affiliate. As will be further set forth in the applicable Co-Development and Co-Commercialization Agreement, if either Party learns of any Third Party Claim with respect to Losses covered by this Section 13.3 (Losses for the Co-Co Products), such Party will provide the other Party with prompt written notice thereof, and the Parties will confer with respect to how to respond to such Third Party Claim and how to handle such Third Party Claim in an efficient manner. In the absence of such an agreement, each Party will have the right to take such action as it deems appropriate.

13.4. **Conditions to Indemnification**. Any Person seeking indemnification under this Article 13 (Indemnification; Limitation Of Liability; Insurance) (the "**Indemnitee**") will give prompt written notice of the indemnity claim to the indemnifying Party and promptly provide a copy to the indemnifying Party of any complaint, summons, or other written or verbal notice that the Indemnitee receives in connection with any such claim. An Indemnitee's failure to deliver written notice will relieve the indemnifying Party of liability to the Indemnitee under this Article 13 (Indemnification; Limitation Of Liability; Insurance) only to the extent such delay is prejudicial to the indemnifying Party's ability to defend or settle such claim. The indemnifying Party will have the right to assume and control the defense of the indemnification claim at its own expense with counsel selected by the indemnifying Party and reasonably acceptable to the Indemnitee; *provided*, *however*, that an Indemnitee will have the right to retain its own counsel that is reasonably acceptable to the indemnifying Party, with the fees and expenses to be paid by the indemnifying Party, if representation of such Indemnitee by the counsel retained by the indemnifying Party would be inappropriate due to actual or potential differing interests between the Indemnitee and any other party represented by such counsel in such proceedings. The indemnifying Party will act reasonably and in good faith with respect to all matters relating to such claim. If the indemnifying Party does not assume the defense of the indemnification claim as described in this Section 13.4 (Conditions to Indemnification), then the Indemnitee may defend the indemnification claim but will have no obligation to do so. The Indemnitee will not settle or compromise the indemnification claim without the prior written consent of the indemnifying Party, and the indemnifying Party will not settle or compromise the indemnification claim in any manner which would have an adverse effect on the Indemnitee's interests (including any rights under this Agreement or the scope, validity, or enforceability of any Patent Rights, Confidential Information, or other rights licensed to Ionis by Metagenomi hereunder), without the prior written consent of the Indemnitee, which consent, in each case (by the indemnifying Party or the Indemnitee, as the case may be), will not be unreasonably withheld, conditioned, or delayed. The Indemnitee will reasonably cooperate with the indemnifying Party at the indemnifying Party's expense and will make available to the indemnifying Party all pertinent information under the control of the Indemnitee, which information will be subject to Article 11 (Confidentiality). The indemnifying Party will not be liable for any settlement or other disposition of the claims by the Indemnitee if such settlement is reached without the written consent of the indemnifying Party pursuant to this Section 13.4 (Conditions to Indemnification).

13.5. **Limited Liability**. NEITHER OF THE PARTIES NOR THEIR RESPECTIVE AFFILIATES OR SUBLICENSEES WILL BE ENTITLED TO RECOVER FROM THE OTHER PARTY OR ITS AFFILIATES OR SUBLICENSEES ANY SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL, OR PUNITIVE DAMAGES OR DAMAGES FOR LOSS OF PROFIT, LOST OPPORTUNITY, LOST DATA OR COST OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES IN CONNECTION WITH THIS AGREEMENT, ITS PERFORMANCE OR LACK OF PERFORMANCE HEREUNDER, WHETHER LIABILITY IS ASSERTED IN CONTRACT, TORT (INCLUDING NEGLIGENCE AND STRICT PRODUCT LIABILITY), INDEMNITY OR CONTRIBUTION, AND IRRESPECTIVE OF WHETHER THAT PARTY OR ANY REPRESENTATIVE OF THAT PARTY HAS BEEN ADVISED OF, OR OTHERWISE MIGHT HAVE ANTICIPATED THE POSSIBILITY OF, ANY SUCH LOSS OR DAMAGE, OR ANY LICENSE GRANTED HEREUNDER, EXCEPT TO THE EXTENT THE DAMAGES RESULT FROM (A) A PARTY'S WILLFUL MISCONDUCT OR GROSS NEGLIGENCE UNDER THIS AGREEMENT, (B) A BREACH OF THE OBLIGATIONS OF A PARTY UNDER ARTICLE 11 (CONFIDENTIALITY) OR UNDER SECTION 3.6 (EXCLUSIVITY), OR (C) AMOUNTS REQUIRED TO BE PAID AS PART OF A CLAIM FOR WHICH A PARTY PROVIDES INDEMNIFICATION UNDER ARTICLE 13 (INDEMNIFICATION; LIMITATION OF LIABILITY; INSURANCE).

13.6. **Insurance Obligations**. Each Party will, at its own expense, procure and maintain during the Term and for a period of [***] thereafter, insurance policies, including product liability insurance when applicable, adequate to cover its obligations hereunder and that are consistent with normal business practices of prudent companies similarly situated. Such insurance will not be construed to create a limit of a Party's liability with respect to its indemnification obligations under this Article 13 (Indemnification; Limitation of Liability; Insurance). Each Party will provide the other Party with written evidence of such insurance. Notwithstanding any provision to the contrary set forth in this Agreement, Ionis may self-insure, in whole or in part, the insurance requirements described above.

Article 14
Term and Termination

14.1. **Term**. This Agreement will commence on the Effective Date and, unless otherwise terminated pursuant to Section 14.2 (Termination), will continue (a) with respect to the Ionis Programs, on an Ionis Product-by-Ionis Product and country-by-country basis until the expiration of all applicable Royalty Terms for an Ionis Product in a country, (b) with respect to the Co-Co Programs for which Metagenomi has not exercised its Opt-Out Right in accordance with Section 5.4 (Metagenomi Opt-Out), on a Co-Co Program-by-Co-Co Program basis until the Parties cease all Exploitation for the Co-Co Products that are the subject to such Co-Co Program, and (c) with respect to the Metagenomi Products, on a Metagenomi Product-by-Metagenomi Product and country-by-country basis until the expiration of the Metagenomi Royalty Term for a Metagenomi Product in a country (the "**Term**"). On a Licensed Product-by-Licensed Product and country-by-country basis, effective upon the expiration of the Royalty Term for a Licensed Product in a country (but not upon any earlier termination of this Agreement for any reason), the licenses granted to Ionis will each become fully paid-up, royalty-free, irrevocable, and perpetual in such country with respect to such Licensed Product. On a Metagenomi Product-by-Metagenomi Product and country-by-country basis, effective upon the expiration of the Metagenomi Royalty Term for a Metagenomi Product in a country (but not upon any earlier termination of this Agreement for any reason), the licenses granted to Metagenomi will each become fully paid-up, royalty-free, irrevocable, and perpetual in such country with respect to such Metagenomi Product.

14.2. **Termination**. This Agreement may be terminated as follows:

14.2.1. **Termination for Convenience by Ionis**. Ionis may terminate this Agreement (either in its entirety or on a Licensed Product-by-Licensed Product basis), for convenience by providing written notice of its intent to terminate to Metagenomi, in which case, such termination will be effective 90 days after Metagenomi's receipt of such written notice.

14.2.2. **Termination for Material Breach**.

(a) **Ionis' Right to Terminate**. If Metagenomi is in material breach of this Agreement, then Ionis may deliver written notice of such material breach to Metagenomi. If the breach is curable, then Metagenomi will have [***] following its receipt of such written notice to cure such breach (except to the extent such breach involves the failure to make a payment when due, in which case such breach must be cured within [***] following Metagenomi's receipt of such written notice). If Metagenomi fails to cure such breach within such [***] or [***] period, as applicable, or the breach is not subject to cure, then Ionis may terminate this Agreement solely with respect to those Licensed Products to which such material breach relates, or in its entirety if such material breach relates to all Licensed Products, by providing written notice to Metagenomi, in which case, this

Agreement will terminate on the date on which Metagenomi receives such written notice; *provided*, *however*, that if (A) the relevant breach does not involve Metagenomi's failure to make a payment when due and is curable, but not reasonably curable within [***], and (B) Metagenomi is making a *bona fide* effort to cure such breach, then Ionis' right to terminate this Agreement on account of such breach will be suspended for up to an additional [***] so long as Metagenomi is continuing to make such *bona fide* effort to cure such breach. If such breach is successfully cured during the applicable cure period, then Ionis will no longer have the right to terminate this Agreement on account of such breach.

(b) **Metagenomi's Right to Terminate**. If Ionis is in material breach of this Agreement, then Metagenomi may deliver written notice of such material breach to Ionis. If the breach is curable, then Ionis will have [***] following its receipt of such written notice to cure such breach (except to the extent such breach involves the failure to make a payment when due, in which case such breach must be cured within [***] following Ionis' receipt of such written notice). If Ionis fails to cure such breach within the [***] or [***] period, as applicable, or the breach is not subject to cure, then Metagenomi may terminate this Agreement in its entirety by providing written notice to Ionis, in which case this Agreement will terminate on the date on which Ionis receives such written notice; *provided*, *however*, that if (i) the relevant breach does not involve Ionis' failure to make a payment when due and is curable, but not reasonably curable within [***], and (ii) Ionis is making a *bona fide* effort to cure such breach, then Metagenomi's right to terminate this Agreement on account of such breach will be suspended for up to an additional [***] so long as Ionis is continuing to make such *bona fide* effort to cure such breach. If such breach is successfully cured during the applicable cure period, then Metagenomi will no longer have the right to terminate this Agreement on account of such breach. Notwithstanding the foregoing, any license granted to Ionis under this Agreement may not be terminated under this Section 14.2.2(b) (Metagenomi's Right to Terminate) if (A) the material breach does not involve the failure to make any material and undisputed portion of a payment due to Metagenomi under Article 9 (Consideration; Financial Terms) and (B) such license is necessary to make, have made, use or sell a Licensed Product for which a Clinical Trial has been Initiated. Termination pursuant to this Section 14.2.2(b) (Metagenomi's Right to Terminate) will not relieve Ionis from liability and damages to Metagenomi for default, and the Parties agree that if monetary damages are available to Metagenomi as a reasonable remedy for any default hereunder, then such monetary remedy will constitute the exclusive remedy for such default in lieu of termination of this Agreement.

(c) **Disputes Regarding Material Breach**. Notwithstanding the foregoing, if the alleged breaching Party in Section 14.2.2(a) (Ionis' Right to Terminate) or Section 14.2.2(b) (Metagenomi's Right to Terminate) disputes in good faith the existence or materiality of any breach, or failure to cure any breach, and provides written notice to the non-breaching Party of such dispute within the relevant cure period, then the non-breaching Party will not have the right to terminate this Agreement in accordance with Section 14.2.2(a) (Ionis' Right to Terminate) or Section 14.2.2(b) (Metagenomi's Right to Terminate), as applicable, unless and until the relevant dispute has been resolved in accordance with Section 15.1 (Dispute Resolution). During the pendency of such dispute, all the terms of this Agreement will remain in effect and the Parties will continue to perform all of their respective obligations hereunder.

14.2.3. **Termination for Insolvency**. If Metagenomi makes an assignment for the benefit of creditors, appoints or suffers appointment of a receiver or trustee over all or substantially all of its property, files a petition under any bankruptcy or insolvency act, or has any such petition filed against it that is not discharged within [***] after the filing thereof (each, an "**Insolvency Event**"), then Ionis may terminate this Agreement in its entirety by providing written notice of its intent to terminate this Agreement to Metagenomi, in which case, this Agreement will terminate on the date on which Metagenomi receives such written notice.

14.3. **Effects of Termination**. In the event of any early termination of this Agreement by a Party pursuant to Section 14.2 (Termination), effective as of the effective date of termination, the following provisions will apply with respect to the Terminated Products in the Terminated Countries:

14.3.1. **Wind-Down**. During the applicable termination notice period, unless otherwise agreed by the Parties, the Parties will begin to wind-down their respective activities under this Agreement to the extent related to the Terminated Products in the Terminated Countries. The JSC will coordinate the wind-down of each Party's efforts under this Agreement with respect to the Terminated Products in the Terminated Countries, or, if the JSC has disbanded, then the Parties will establish an appropriate committee to coordinate such wind-down.

14.3.2. **Termination of Rights and Licenses**. Other than as expressly set forth herein, including those provisions that this Agreement expressly provides will survive such termination and subject to Section 14.3.8 (Sublicense Survival), all rights and licenses granted from one Party to the other hereunder will immediately terminate with respect to the Terminated Products in the Terminated Countries; *provided* that such licenses will continue as necessary for the Parties to complete the orderly wind-down of their activities under this Agreement in accordance with Applicable Law and as otherwise required in accordance with Section 14.3.1 (Wind-Down).

14.3.3. **Termination of Payment Obligations**. All payment obligations with respect to the Terminated Products in the Terminated Countries hereunder will terminate, other than those that are accrued and unpaid as of the effective date of such termination. For any payment obligations that are accrued and unpaid as of the effective date of termination, an invoice must be provided no later than [***] after the effective date of termination.

14.3.4. **Sell-Off Right**. For a period not to exceed [***] following the effective date of termination, Ionis will have the right to sell or otherwise dispose of the Terminated Products in the Terminated Countries on hand at the time of such termination or in the process of Manufacturing; *provided* that any revenue obtained from such disposal will be treated as Net Sales and the provisions of Article 9 (Consideration; Financial Terms) will apply to such Net Sales and, if such sales result in the achievement of any Ionis Product Sales Milestone Event, then the applicable Ionis Product Sales Milestone Payment will be payable.

14.3.5. **Assignment of Regulatory Submissions**. Except with respect to any termination by Ionis under Section 14.2.2(a) (Ionis' Right to Terminate), Ionis will, as promptly as practicable, transfer to Metagenomi possession and ownership of all Regulatory Approvals solely relating to the Exploitation of any Terminated Product in the Terminated Countries.

14.3.6. Reversion for Terminated Products other than Combination Products.

(a) **Reversion License Grant**. Upon Metagenomi's written request no later than 30 days following the effective date of termination and agreement by the Parties of the applicable royalty rate pursuant to Section 14.3.6(c) (Reversion Royalties), Ionis will grant and agrees to grant to Metagenomi, an exclusive, royalty-bearing (solely as provided in Section 14.3.6(c) (Reversion Royalties)), right and license, with the right to grant sublicenses through multiple tiers, under Patent Rights and Know-How Controlled by Ionis or its Affiliates to the extent such Patent Rights or Know-How are actually being used on the date of such termination by the Parties in the Development, Commercialization, or other Exploitation of the Terminated Products in the Terminated Countries as such Terminated Products exist as of the effective date of termination, solely to Exploit such Terminated Products in the Terminated Countries; *provided* that, if any such Terminated Products are Combination Products, then such license will not include any license or other rights with respect to any Other Product that is Covered by Patent Rights Controlled by Ionis or any of its Affiliates and Metagenomi will not obtain a license to any such Other Product other than pursuant to Section 14.3.7 (Reversion for Certain Combination Products) (such license grant, the "**Reversion License**").

(b) **Third Party Reversion IP**. With respect to any Patent Rights or Know-How that are the subject of the Reversion License that are in-licensed by Ionis from Third Parties, Ionis will notify Metagenomi of such Patent Rights or Know-How that are sublicensable to Metagenomi under the Reversion License (which notice will describe the terms and conditions of any Third Party agreements that are applicable to the grant to Metagenomi of the Reversion Licenses under such Patent Rights or Know-How (any such agreement, a "**Reversion IP In-License Agreement**"), including applicable payment terms). If Metagenomi elects to receive a sublicense under any Reversion IP In-License Agreement, then Metagenomi will notify Ionis in writing and Metagenomi will be responsible for (i) making all payments (including royalties, milestones, and other amounts) that are payable by Ionis to the Third Parties under each Reversion IP In-License Agreement with respect to and allocable to the Patent Rights and Know-How that are the subject of the Reversion License and arising out of the Exploitation of the Terminated Products in the Terminated Countries by making such payments directly to Ionis and, in each instance, Metagenomi will make the requisite payments to Ionis and provide the necessary reporting information to Ionis in sufficient time to enable Ionis to comply with its obligations under each Reversion IP In-License Agreement, and (ii) complying with any other obligations included in each Reversion IP In-License Agreement that are applicable to the grant to Metagenomi of the Reversion License under the applicable Patent Rights or Know-How (*provided* that Ionis has notified Metagenomi of such obligations), and the granting by Metagenomi of a sublicense under the Reversion Licenses will not relieve Metagenomi of its obligations under subclauses (i) and (ii).

(c) **Reversion Royalties**. The licenses granted to Metagenomi in Section 14.3.6(a) (Reversion License Grant) will be royalty-bearing, and Metagenomi will pay Ionis, on a Calendar Quarter basis, the royalty rates that are agreed to by the Parties at the time of Metagenomi's written request delivered pursuant to Section 14.3.6(a) (Reversion License Grant). With respect to the royalty rates to be agreed to by the Parties pursuant to this Section 14.3.6(c) (Reversion Royalties), the Parties will

take into account, among other things, (i) [***], (ii) [***], (iii) [***], and (iv) [***], and if the Parties have not reached agreement on such financial terms within [***] after such effective date of termination, then either Party may refer such matter for resolution pursuant to Section 15.1.3 (Expedited Dispute Resolution).

14.3.7. **Reversion for Certain Combination Products**. If (a) any of the Terminated Products are Combination Products that are required, by the approved labeling for such Terminated Product, to be promoted as a Combination Product and the Other Product for such Terminated Product is exclusively Controlled by Ionis, such that Metagenomi is not able to otherwise acquire such Other Product, and (b) there is no approved label regarding the promotion of the Terminated Product that is not a Combination Product (any such Terminated Product meeting the requirements of (a) and (b), a "**Terminated Combination Products**"), then upon Metagenomi's written request no later than [***] following the effective date of termination for such Terminated Combination Products, the Parties will enter into good faith negotiations for up to [***] regarding the grant of a non-exclusive, royalty-bearing right and license, with the right to grant sublicenses through multiple tiers, under Patent Rights and Know-How Controlled by Ionis or its Affiliates to the extent such Patent Rights or Know-How are actually being used on the date of such termination by the Parties in the Development, Commercialization, or other Exploitation of the Terminated Combination Products in the Terminated Countries as such Terminated Combination Products exist as of the effective date of termination, solely to Exploit such Terminated Combination Products in the Terminated Countries.

14.3.8. **Sublicense Survival**. Any sublicense granted hereunder by Ionis will, at the Sublicensee's option, survive such termination on the condition that the relevant Sublicensee is not in material breach of any of its obligations under such sublicense. In order to effect this provision, at the request of the Sublicensee, Metagenomi will enter into a direct license with the Sublicensee on terms that are substantially the same terms as the applicable terms of this Agreement; *provided* that Metagenomi will not be required to undertake obligations in addition to those required by this Agreement, and Metagenomi's rights under such direct license will be consistent with its rights under this Agreement, taking into account the scope of the license granted under such direct license.

14.4. **Confidential Information**. Upon the expiration or termination of this Agreement with respect to a Terminated Product in a Terminated Country, the Receiving Party will return (or, as directed by the Disclosing Party, destroy) all Confidential Information of the Disclosing Party related to such Terminated Product in such Terminated Country to the Disclosing Party that is in the Receiving Party's possession or control (other than any Confidential Information required to continue to exercise a Party's rights that survive such expiration or termination of this Agreement); *provided*, *however*, copies may be retained and stored solely for the purpose of determining a Party's obligations under this Agreement, subject to the non-disclosure and non-use obligation under Article 11 (Confidentiality). In addition, the Receiving Party will not be required to return or destroy Confidential Information contained in any computer system back-up records made in the ordinary course of business.

14.5. **Surviving Provisions**. Subject to the other terms and conditions regarding the termination and survival of obligations under this Agreement in the event of expiration or termination of this Agreement, upon expiration or termination of this Agreement, all provisions of this Agreement will cease to have any effect, except that the following provisions will survive any such expiration or termination for any reason for the period of time specified therein, or if not specified, then they will survive indefinitely: Section 2.5.1 (Reimbursement by Ionis) (solely with respect to obligations

accrued, but not yet paid, as of the effective date of termination of this Agreement); Section 3.1.3 (Unblocking License); Section 3.2.2 (Unblocking License); Section 3.5 (No Implied Licenses); Section 9.4 (Ionis Product Milestone Payments), Section 9.6 (Ionis Product Royalty Payments), Section 9.9 (Payment Obligations Under Certain In-License Agreements), and Section 9.10 (Metagenomi Product Economics) (in each case, solely with respect to obligations accrued, but not yet paid, as of the effective date of expiration or termination of this Agreement); Section 9.11 (Other Payments); Section 9.12 (Right to Offset); Section 9.13 (Records and Audits) (solely for [***] after termination or expiration of this Agreement); Section 9.14 (Currency of Payment; Non-Refundable Payments) through Section 9.17 (Withholding Taxes); Section 10.1.1 (Background Intellectual Property); Section 10.1.2 (By Inventorship); Section 10.2 (Patent Prosecution) (solely with respect to Joint Collaboration Patent Rights); Section 10.3 (Patent Enforcement) (solely with respect to Joint Collaboration Patent Rights); Section 11.1 (Confidential Information) through Section 11.4 (Publication Announcements and Subsequent Disclosures); Section 12.6 (Warranty Disclaimer); Section 13.1 (Indemnification of Metagenomi by Ionis) through Section 13.5 (Limited Liability); Section 13.6 (Insurance Obligations) (solely for [***] after expiration or termination of this Agreement); Section 14.1 (Term) (solely in the event of expiration and with respect to the last two sentences); Section 14.3 (Effects of Termination); Section 14.4 (Confidential Information); this Section 14.5 (Surviving Provisions); Article 15 (Miscellaneous); and Appendix 1 (Definitions) (as applicable). Termination or expiration of this Agreement (either in its entirety or with respect to one or more Licensed Products) will not relieve either Party of any liability that accrued hereunder prior to the effective date of such termination or expiration, preclude either Party from pursuing all rights and remedies it may have hereunder or at law or in equity with respect to any breach of this Agreement nor prejudice any rights that will have accrued to the benefit of any Party prior to such termination or expiration. The remedies provided in this Article 14 (Term and Termination) are not exclusive of any other remedies a Party may have in law or equity.

Article 15
Miscellaneous

15.1. Dispute Resolution.

15.1.1. **Escalation**. In the event of any dispute, claim, controversy, or cause of action asserted by a Party against the other Party or by the Metagenomi Indemnitees against Ionis or by the Ionis Indemnitees against Metagenomi arising out of or related to this Agreement or performance of this Agreement (other than matters within the purview of the JSC, which will be resolved as set forth in Section 4.6 (Decision-Making)) (a "**Claim**"), including any alleged breach of this Agreement or claim for indemnification pursuant to Article 13 (Indemnification; Limitation Of Liability; Insurance), such Party may, by written notice to the other Party, refer such matter to the Parties' respective officers designated below for attempted resolution (each, an "**Executive Officer**"):

For Ionis:	Chief Executive Officer (or such other senior executive designated by Ionis for such purpose)
For Metagenomi:	Chief Executive Officer (or such other senior executive designated by Metagenomi for such purpose)

15.1.2. **Arbitration**. Except as otherwise expressly set forth in this Agreement, if such Executive Officers do not resolve the dispute within [***] after receipt of such request, then, either Party may at any time after such [***] period submit such Claim to be finally settled by arbitration administered in accordance with the procedural rules of the American Arbitration Association (the "**AAA**") in effect at the time of submission, as modified by

this Section 15.1.2 (Arbitration) (the "**Arbitration**"). The Arbitration will be governed by the Applicable Law of the State of New York. The Arbitration will be heard and determined by three arbitrators who are retired judges or attorneys with at least 20 years of relevant experience, each of whom will be impartial and independent and will not have worked for or on behalf of either Party for at least [***]. Each Party will appoint one arbitrator and the third arbitrator will be selected by the two Party-appointed arbitrators, or, failing agreement within [***] following appointment of the second arbitrator, by the AAA. Such Arbitration will take place in New York, NY. The Arbitration award so given will, absent an appealable error under applicable AAA procedural rules, be a final and binding determination of the Claim, will be fully enforceable in any court of competent jurisdiction, and will not include any damages expressly prohibited by Section 13.5 (Limited Liability). Ionis will pay the fees, costs, and expenses for the arbitrator it chooses, Metagenomi will pay the fees, costs, and expenses for the arbitrator it chooses, and the Parties will share payment of the fees, costs and expenses for the third arbitrator. Except in a proceeding to enforce the results of the Arbitration or as otherwise required by Applicable Law or securities exchange, neither Party nor any arbitrator may disclose the existence, content, or results of any Arbitration hereunder without the prior written consent of both Parties. The Parties will instruct the arbitrators to complete the Arbitration within [***] after selection of the first arbitrator by a Party and each Party will use reasonable efforts to complete such arbitration proceedings within such time period.

15.1.3. **Expedited Dispute Resolution**. If the Executive Officers fail to reach agreement on any Expedited Dispute within [***] of submission of such Expedited Dispute to the Executive Officers, then either Party may notify the other Party of its intent to invoke dispute resolution under this Section 15.1.3 (Expedited Dispute Resolution) and such Expedited Dispute will be resolved by binding arbitration in accordance with this Section 15.1.3 (Expedited Dispute Resolution) except that the procedures for the conduct of such arbitration will be modified as follows:

(a) The arbitration will be conducted by a single neutral arbitrator selected by the Parties or, failing agreement by the Parties, by the AAA in accordance with the procedural rules of the AAA. Such arbitrator will be a retired judge or attorney with at least 20 years of relevant experience, who will be impartial and independent and will not have worked for or on behalf of either Party for at least [***]. The arbitrator will have the authority to engage one or more Third Party experts who are expert in the subject matter of the dispute to advise the arbitrator in rendering his or her decision (each, a "**Third Party Expert**"), and the costs of such Third Party Expert(s) will be included in the costs of the arbitration. The arbitrator will seek to obtain the mutual agreement of the Parties regarding such Third Party Expert(s), but absent such agreement, such Third Party Expert(s) will be selected by the arbitrator. Each Third Party Expert will be a disinterested individual who is not affiliated with either Party or its Affiliates or a Sublicensee and who has expertise and experience with respect to the subject matter of the Expedited Dispute, as determined by the arbitrator. Neither the Third Party Expert nor any of the Third Party Expert's former employers will be or have been at any time an Affiliate, employee, officer or director of, or a consultant for, either Party or any of its Affiliates or a Sublicensee.

(b) Within [***] of appointment of the arbitrator (and selection of the Third Party Expert(s)) in accordance with this Section 15.1.3 (Expedited Dispute Resolution), the Parties will submit their written positions regarding the Expedited Dispute to the other Party and the arbitrator. Each Party may submit a revised written position to the arbitrator within [***] of receiving the other Party's written position. If so requested by the arbitrator, each Party will make oral or other written submissions to the arbitrator in accordance with procedures to be established by the arbitrator; *provided* that the other Party will have the right to be present during any oral submissions.

(c) The arbitrator will render a decision in writing within [***] (or such other time period as the Parties may agree) after receipt of the last Party's written position, which decision will be in accordance with the applicable provisions of this Agreement, and such decision will be conclusive and binding on the Parties.

(d) Notwithstanding anything to the contrary herein, the arbitration under this Section 15.1.3 (Expedited Dispute Resolution) will be conducted as a "baseball arbitration" type proceeding. The arbitrator will select one of the Party's position as his or her decision, based on what is most reasonable and equitable to each of the Parties under the circumstances and in light of the terms set forth in this Agreement, and will not have the authority to render any substantive decision other than to so select one Party's position as initially submitted, or as revised in accordance with the foregoing, as applicable. The arbitrator may fashion such detailed procedures as the arbitrator considers appropriate to implement this intent.

(e) The Parties will instruct the arbitrator to complete all arbitration proceedings within [***] after selection of the arbitrator and each Party will use reasonable efforts to complete such arbitration proceedings within such time period.

15.1.4. **Tolling**. The Parties agree that all applicable statutes of limitation and time-based defenses (such as estoppel and laches), as well as all time periods in which a Party must exercise rights or perform obligation hereunder, will be tolled once the dispute resolution procedures set forth in this Section 15.1 (Dispute Resolution) have been initiated and for so long as they are pending, and the Parties will cooperate in taking all actions reasonably necessary to achieve such a result. In addition, during the pendency of any Claim under this Agreement initiated before the end of any applicable cure period, including under Section 14.2.2 (Termination for Material Breach), (a) this Agreement will remain in full force and effect, (b) the provisions of this Agreement relating to termination for material breach with respect to such Claim will not be effective, and (c) neither Party will issue a notice of termination pursuant to this Agreement based on the subject matter of the arbitration, until the arbitral tribunal has confirmed the material breach and the existence of the facts claimed by a Party to be the basis for the asserted material breach; *provided* that if such breach can be cured by (i) the payment of money, the defaulting Party will have an additional [***] within its receipt of the arbitral tribunal's decision to pay such amount (or such later date if specified in the arbitral tribunal's decision) or (ii) the taking of specific remedial actions, the defaulting Party will have a reasonably necessary period to diligently undertake and complete such remedial actions within such reasonably necessary period or any specific timeframe established by such arbitral tribunal's decision before any such notice of termination can be issued. Further, with respect to any time periods that have run during the pendency of the Claim, the applicable Party will have a reasonable period of time or any specific timeframe established by such arbitral tribunal's decision to exercise any rights or perform any obligations affected by the running of such time periods.

15.2. **Designation of Affiliates.** Each Party may discharge any obligations and exercise any rights under this Agreement through delegation of its obligations or rights to any of its Affiliates; *provided* that the delegating Party will remain primarily responsible for such obligation. Each Party hereby guarantees the performance by its Affiliates of such Party's obligations under this Agreement, and will cause its Affiliates to comply with the provisions of this Agreement in connection with such performance. Any breach by a Party's Affiliate of any of such Party's obligations under this Agreement will be a breach by such Party, and the other Party may proceed directly against such Party without any obligation to first proceed against such Party's Affiliate.

15.3. **Patent Disputes.** Notwithstanding Section 15.1.2 (Arbitration), if a dispute arises between the Parties under this Agreement with respect to the inventorship, interpretation, scope, validity, enforceability, applicability or term of any Patent Right, then such dispute will not be resolved pursuant to Section 15.1.2 (Arbitration), but instead may be brought by either Party in the federal courts in the State of New York.

15.4. **Injunctive Relief.** Notwithstanding anything to the contrary set forth in this Agreement, the Parties each stipulate and agree that (a) the other Party's Confidential Information includes highly sensitive trade secret information, (b) a breach of Section 3.6 (Exclusivity) or Article 11 (Confidentiality), in each case, may cause irrevocable harm for which monetary damages would not provide a sufficient remedy, and (c) in such case of a breach of Section 3.6 (Exclusivity) or Article 11 (Confidentiality), the non-breaching Party will be entitled to equitable relief (including temporary or permanent restraining orders, specific performance or other injunctive relief) from any court of competent jurisdiction. In addition, and notwithstanding anything to the contrary set forth in this Agreement, in the event of any other actual or threatened breach hereunder, the aggrieved Party may seek equitable relief (including temporary or permanent restraining orders, specific performance or other injunctive relief) from any court of competent jurisdiction without first submitting to the dispute resolution procedures set forth in Section 15.1 (Dispute Resolution).

15.5. **Governing Law**. This Agreement will be governed by and construed in accordance with the laws of the State of New York without taking into consideration any choice of law principles that would lead to the application of the laws of another jurisdiction.

15.6. **Cumulative Remedies**. The rights and remedies of the Parties under this Agreement are cumulative and not exclusive and, accordingly, are in addition to and not in lieu of any other rights and remedies of the Parties at law or in equity.

15.7. **Notices.** Any notice or report required or permitted to be given or made under this Agreement by either Party to the other will be in writing and delivered to the other Party at its address indicated below or to such other address as the addressee will have theretofore furnished in writing to the addressor by hand, courier or by registered or certified airmail (postage prepaid), in writing, by registered or certified airmail (postage prepaid):

If to Ionis:
Ionis Pharmaceuticals, Inc.
2855 Gazelle Court
Carlsbad, CA 92010
Attention: Chief Business Officer

Copy to (which copy will not constitute notice):

Attention: General Counsel

If to Metagenomi: Metagenomi, Inc.
1545 Park Avenue
Emeryville CA 94608
Attention: Brian C. Thomas

Copy to (which copy will not constitute notice):

Attention:
Copy to

All notices will be deemed effective: (a) if by courier, on the Business Day of delivery as evidenced by the courier's receipt (or if delivered or sent on a non-Business Day, then on the next Business Day); or (b) if sent by registered or certified airmail, on the Business Day of receipt as evidenced on the return receipt.

15.8. **Amendment; Waiver**. This Agreement (including all exhibits and attachments to this Agreement except as set forth in Section 2.2.3 (Amendments to the Drug Discovery Plans) or Section 2.3.2 (Amendments to the Exploratory Research Plan)), may be amended, modified, superseded, or cancelled only by a written agreement between the Parties, and any of the terms of this Agreement may be waived only by a written instrument executed by each Party or, in the case of waiver, by the Party or Parties waiving compliance. The delay or failure of either Party at any time or times to require performance of any provisions will in no manner affect the rights at a later time to enforce the same. No waiver by either Party of any condition or of the breach of any term contained in this Agreement, whether by conduct, or otherwise, in any one or more instances, will be deemed to be, or considered as, a further or continuing waiver of any such condition or of the breach of such term or any other term of this Agreement.

15.9. **Assignment and Successors**. Neither Party may assign or transfer this Agreement in whole or in part or the licenses granted under this Agreement without the other Party's prior written consent *unless* such assignment is to (a) a Third Party successor or purchaser of all or substantially all of the assets or businesses to which this Agreement relates whether pursuant to a sale of assets, merger, or other transaction, in which case the assigning Party will provide prior written notice to the other Party and need not obtain the other Party's consent or (b) an Affiliate of such Party, in which case the assigning Party will provide prior written notice to the other Party and need not obtain the other Party's consent; *provided* that, in either case, the assigning Party remains fully liable for the performance of its obligations hereunder by such assignee. Each Party will also have the right to sell, assign, and convey its rights to receive royalties from Net Sales of Licensed Product (with respect to Metagenomi) and Metagenomi Products (with respect to Ionis) and related rights to receive royalty reports and conduct audits of the other Party, its Affiliates and Sublicensees to Third Party purchasers of royalty interests. Any other assignment of this Agreement by a Party requires the prior written consent of the other Party. An assignment to an Affiliate will terminate, and all rights so assigned will revert to the assigning Party, if and when such Affiliate ceases to be an Affiliate of the assigning Party. For clarity, any assignment in violation of this Section 15.9 (Assignment and Successors) will be null, void, and of no legal effect. This Agreement will be binding upon and inure to the benefit of the Parties and their respective legal representatives, successors and permitted assigns.

15.10. Rights in Bankruptcy.

15.10.1. All rights and licenses now or hereafter granted by one Party to the other Party under or pursuant to this Agreement, including, for the avoidance of doubt, the licenses granted to Ionis pursuant to Section 3.1 (License Grant to Ionis), are, for all purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of rights to "intellectual property" as defined in the U.S. Bankruptcy Code. Upon the occurrence of any Insolvency Event with respect to a Party granting a license (the "**Licensing Party**"), the Licensing Party agrees that the other Party (the "**Licensee**"), as licensee of such rights under this Agreement, will retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code. Without limiting the generality of the foregoing, the Parties intend and agree that any sale of a Licensing Party's assets under Section 363 of the U.S. Bankruptcy Code will be subject to Ionis' rights under Section 365(n), that the Licensee cannot be compelled to accept a money satisfaction of its interests in the intellectual property licensed pursuant to this Agreement, and that any such sale therefore may not be made to a purchaser "free and clear" of the Licensee's rights under this Agreement and Section 365(n) without the express, contemporaneous consent of the Licensee. The Licensing Party will, during the Term, create and maintain current copies or, if not amenable to copying, detailed descriptions or other appropriate embodiments, to the extent feasible, of all intellectual property licensed under this Agreement. Each Party acknowledges and agrees that "embodiments" of intellectual property within the meaning of Section 365(n) include laboratory notes and notebooks, cell lines, laboratory samples, product samples and inventory, research studies and data, all Regulatory Approvals (and all applications for Regulatory Approval) and rights of reference therein, marketing advertising and promotional materials, the Licensed Technology, and all information related to the Licensed Technology. If (a) a case under the U.S. Bankruptcy Code is commenced by or against a Licensing Party, (b) this Agreement is rejected as provided in the U.S. Bankruptcy Code, and (c) the Licensee elects to retain its rights hereunder as provided in Section 365(n) of the U.S. Bankruptcy Code, the Licensing Party (in any capacity, including debtor-in-possession) and its successors and assigns (including a trustee) will:

(a) provide the Licensee with all such intellectual property (including all embodiments thereof) held by the Licensing Party and such successors and assigns, or otherwise available to them, immediately upon Ionis' written request. Whenever the Licensee or any of its successors or assigns provides to Ionis any of the intellectual property licensed hereunder (or any embodiment thereof) pursuant to this Section 15.10.1, the Licensee will have the right to perform the Licensing Party's obligations hereunder with respect to such intellectual property, but neither such provision nor such performance by the Licensee will release the Licensing Party from liability resulting from rejection of the license or the failure to perform such obligations; and

(b) not interfere with the Licensee's rights under this Agreement, or any agreement supplemental hereto, to such intellectual property (including such embodiments), including any right to obtain such intellectual property (or such embodiments) from another entity, to the extent provided in Section 365(n) of the U.S. Bankruptcy Code.

15.10.2. All rights, powers and remedies of the Licensee provided herein are in addition to and not in substitution for any other rights, powers, and remedies now or hereafter existing at law or in equity (including the U.S. Bankruptcy Code) in the event of the commencement of a case under the U.S. Bankruptcy Code with respect to the Licensing Party. The Parties intend the following rights to extend to the maximum extent permitted by Applicable Law, and to be enforceable under U.S. Bankruptcy Code Section 365(n):

(a) the right of access to any intellectual property rights (including all embodiments thereof) of the Licensing Party, or any Third Party with whom the Licensing Party contracts to perform an obligation of the Licensing Party under this Agreement, and, in the case of any such Third Party, which is necessary for the Manufacture, use, sale, import, or export of Licensed Systems and Licensed Products; and

(b) the right to contract directly with any Third Party to complete the contracted work.

15.11. **Force Majeure**. Neither Party will be held liable or responsible to the other Party nor be deemed to be in default under, or in breach of any provision of, this Agreement for failure or delay in fulfilling or performing any obligation (other than a payment obligation) of this Agreement to the extent such failure or delay is due to force majeure. For purposes of this Agreement, "**Force Majeure**" is defined as any cause beyond the reasonable control of the affected Party and without the fault or negligence of such Party, which may include acts of God; material changes in Applicable Law; war; civil commotion; destruction of production facilities or materials by fire, flood, earthquake, explosion or storm; labor disturbances; epidemic; pandemic; quarantine; and failure of public utilities or common carriers. The Parties agree the effects of the COVID-19 pandemic that is ongoing as of the Effective Date (including related government orders) may be invoked as a Force Majeure for the purposes of this Agreement, even though the pandemic is ongoing, only to the extent those effects are not reasonably foreseeable by the Parties as of the Effective Date. Notwithstanding the foregoing, a Party will not be excused from making payments owed hereunder due to any Force Majeure circumstances affecting such Party. In the case of a Force Majeure, the Party affected by such Force Majeure will immediately notify the other Party of such inability and of the period for which such inability is expected to continue. The Party giving such notice will thereupon be excused from such of its obligations under this Agreement as it is thereby disabled from performing for so long as it is so disabled for up to a maximum of [***], after which time the Parties will promptly meet to discuss in good faith how to best proceed in a manner that maintains and abides by the Agreement. To the extent possible, the Party affected by such Force Majeure will use reasonable efforts to minimize the duration of any Force Majeure.

15.12. **Interpretation**. The Parties acknowledge and agree that: (a) each Party and its counsel reviewed and negotiated the terms and provisions of this Agreement and have contributed to its revision; (b) the rule of construction to the effect that any ambiguities are resolved against the drafting Party will not be employed in the interpretation of this Agreement; and (c) the terms and provisions of this Agreement will be construed fairly as to each Party and not in a favor of or against either Party, regardless of which Party was generally responsible for the preparation of this Agreement. In addition, except as otherwise explicitly specified to the contrary, (i) references to a section, schedule or exhibit means a section of, or schedule or exhibit to this Agreement, unless another agreement is specified, (ii) the word "including" (in its various forms) means "including without limitation," (iii) the words "shall" and "will" have the same meaning, (iv) references to a particular statute or regulation include all rules and regulations thereunder and any predecessor or successor statute, rules or regulations, in each case as amended or otherwise modified from time-to-time, (v) words in the singular will be held to include the plural and vice versa, and words of one gender will be held to include all genders as the context requires, (vi) references to a particular Person include such Person's successors and assigns to the extent not prohibited by this Agreement, (vii) references to "days" will mean calendar days, unless otherwise specified, (viii) the word "or" will not be exclusive, unless the context otherwise requires, (ix) the titles and headings contained in this Agreement are for reference purposes only and will not affect in any way the meaning or interpretation of this Agreement, (x) the terms "hereof," "hereby," "hereto," and derivative or similar words refer to this entire Agreement, including any schedules or exhibits hereto, and (xi) unless otherwise specified, "$" is in reference to United States Dollars.

15.13. **Integration**. This Agreement, together with all exhibits and schedules attached hereto and each Co-Development and Co-Commercialization Agreement, any Development Supply Agreement, and any Commercial Supply Agreement, sets forth the entire agreement with respect to the subject matter hereof and thereof and supersedes all other agreements and understandings between the Parties with respect to such subject matter, including the Confidentiality Agreement.

15.14. **Severability**. Each Party hereby agrees that it does not intend to violate any public policy, statutory or common laws, rules, regulations, treaty, or decision of any government agency or executive body thereof of any country or community or association of countries. If one or more provisions of this Agreement be or become invalid, then the Parties will substitute, by written agreement, valid provisions for such invalid provisions, which valid provisions in their economic effect are sufficiently similar to the invalid provisions such that it can be reasonably assumed that the Parties would have entered into this Agreement with such valid provisions. If the Parties are unable to agree upon such alternative valid provision, then the invalidity of one or several provisions of this Agreement will not affect the validity of this Agreement as a whole, unless the invalid provisions are of such essential importance to this Agreement such that it is to be reasonably assumed that the Parties would not have entered into this Agreement without the invalid provisions.

15.15. **Further Assurances**. Each of Ionis and Metagenomi agrees to duly execute and deliver, or cause to be duly executed and delivered, such further instruments and do and cause to be done such further acts and things, including, the filing of such additional assignments, agreements, documents and instruments, as the other Party may at any time and from time-to-time reasonably request in connection with this Agreement or to carry out more effectively the provisions and purposes of, or to better assure and confirm unto such other Party its rights and remedies under, this Agreement.

15.16. **Counterparts**. This Agreement may be executed in counterparts, all of which taken together will be regarded as one and the same instrument. Counterparts may be delivered via electronic mail, including Adobe™ Portable Document Format (PDF) or any electronic signature complying with the U.S. Federal ESIGN Act of 2000, and any counterpart so delivered will be deemed to be original signatures, will be valid and binding upon the Parties, and, upon delivery, will constitute due execution of this Agreement.

15.17. **Relationship of the Parties**. In entering into this Agreement and performing their respective duties and obligations with respect to the Agreement, the Parties are acting, and intend to be treated, as independent entities, and the activities and resources of each Party will be managed by such Party, acting independently and in its individual capacity. The relationship between the Parties is that of independent contractors, and neither Party will have the power to bind or obligate the other Party in any manner. Nothing contained in this Agreement will be construed or implied to create an agency, partnership, joint venture, fiduciary, or employer-employee relationship between the Parties. Except as otherwise expressly provided in this Agreement, neither Party may make any representation, warranty or commitment, whether express or implied, on behalf of or incur any charges or expenses for or in the name of the other Party. Neither Party will hold itself out, or take any action, contrary to the terms of this Section 15.17 (Relationship of the Parties), and neither Party will become liable due to any such representation, warranty, commitment, act or omission made by the other Party contrary to the provisions of this Section 15.17 (Relationship of the Parties). Subject to the terms of this Agreement, the activities and resources of each Party will be managed by such Party, acting independently and in its individual capacity.

[*Remainder of page intentionally left blank.*]

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

METAGENOMI, INC.

By: /s/ Brian Thomas
Name: Brian Thomas
Title: Chief Executive Officer

IONIS PHARMACEUTICALS, INC.

By: /s/ Brett Monia
Name: Brett Monia
Title: Chief Executive Officer

Appendix 1

Definitions

For purposes of this Agreement, whether used in the singular or plural, the following terms will have the meanings set forth below:

1.1. "**AAA**" has the meaning set forth in Section 15.1.2 (Arbitration).

1.2. "**Accounting Standards**" means United States Generally Accepted Accounting Principles, as generally and consistently applied throughout a Party's organization.

1.3. "**Acquiring Party**" has the meaning set forth in Section 9.8.1 (Proposed New In-License Agreement).

1.4. "**Acquisition Transaction**" has the meaning set forth in Section 3.6.2 (Acquisition of Distracting Product).

1.5. "**Additional Drug Discovery Plan**" has the meaning set forth in Section 2.2.2 (Additional Drug Discovery Plans).

1.6. "**Additional Wave 1 Target**" has the meaning set forth in Section 2.1.1(c) (Additional Wave 1 Target Selection).

1.7. "**Additional Wave 1 Target Notice**" has the meaning set forth in Section 2.1.1(c) (Additional Wave 1 Target Selection).

1.8. "**Additional Wave 1 Target Selection Period**" has the meaning set forth in Section 2.1.1(c) (Additional Wave 1 Target Selection).

1.9. "**Affiliate**" means, as of any point in time and for so long as such relationship continues to exist with respect to any Person, any other Person that controls, is controlled by, or is under common control with such Person. For purposes of this Section 1.9 (Affiliate), the term "control" (including, with correlative meaning, the terms "controlled by" and "under common control with"), means the possession, directly or indirectly, of more than 50% of the voting stock or other ownership interest of such Person, or the possession, directly or indirectly, of the power to direct or cause the direction of the affairs or management and policies of such Person or the power to elect or appoint more than 50% of the members of the governing body of such Person. The Parties acknowledge that in the case of certain entities organized under the laws of certain countries outside the United States, the maximum percentage ownership permitted by Applicable Law for a foreign investor may be less than 50%, and that in such case such lower percentage will be substituted in the preceding sentence; *provided* that such foreign investor has the power to direct the management and policies of such entity.

1.10. "**Agreement**" has the meaning set forth in the Preamble.

1.11. "**Alliance Manager**" has the meaning set forth in Section 4.4 (Alliance Managers).

1.12. "**[***]**" means any amount that is less than [***], on a year to date basis, set forth in the Exploratory Research Budget or a Drug Discovery Budget (as applicable) for such Calendar Year; *provided* that such amount is not incurred as a result of any breach by Metagenomi of this Agreement.

1.13. "**Annual Net Sales**" means, with respect to an Ionis Product, the aggregate Net Sales of such Ionis Product sold by Ionis, its Affiliates, or Sublicensees in the Field in the Territory during a Calendar Year and only during the Royalty Term for such Ionis Product in the applicable country.

1.14. "**Applicable Law**" means applicable (with respect to the particular activity, task, or obligation under this Agreement to which such term applies) laws, statutes, rules, regulations, and other pronouncements having the effect of law of any Governmental Authority that may be in effect from time to time, including for clarity any applicable rules, regulations, guidelines, or other requirements of any Regulatory Authority that may be in effect from time to time.

1.15. "**Arbitration**" has the meaning set forth in Section 15.1.2 (Arbitration).

1.16. "**Audited Party**" has the meaning set forth in Section 9.13.1 (Books and Records).

1.17. "**Auditing Party**" has the meaning set forth in Section 9.13.1 (Books and Records).

1.18. "**Auditor**" has the meaning set forth in Section 9.13.1 (Books and Records).

1.19. "**Available**" means, with respect to a Proposed Target, that such Proposed Target is not an Encumbered Target.

1.20. "**[***]**" has the meaning set forth in Section 2.2.4(a) (New [***]).

1.21. "**Biosimilar Product**" means, with respect to a particular Licensed Product in a particular country, a product on the market in such country commercialized by any Third Party that is not a Sublicensee and that did not purchase such product in a chain of distribution that included any of Ionis or its Affiliates or Sublicensees, that (a) is approved by the applicable Regulatory Authority, under any then-existing laws and regulations in the applicable country pertaining to approval of generic or biosimilar biologic products, as a "generic" or "biosimilar" version of such Licensed Product, which approval uses such Licensed Product as a reference product and relies on or references information in the MAA for such Licensed Product, or (b) is otherwise recognized by the applicable Regulatory Authority as a biosimilar or interchangeable product to such Licensed Product.

1.22. "**BLA**" means a biologics license application that is submitted to the FDA for a Licensed Product, pursuant to 21 C.F.R. § 601.2.

1.23. "**Business Day**" means any day, other than Saturday, Sunday, or any day on which banking institutions in California are authorized or required by Applicable Law to remain closed.

1.24. "**C.F.R.**" means the U.S. Code of Federal Regulations.

1.25. "**Calendar Quarter**" means each period of three consecutive calendar months ending on March 30, June 30, September 30, or December 31, except that the first Calendar Quarter of the Term will commence on the Effective Date, and the last Calendar Quarter of the Term will end on the effective date of the termination or expiration of this Agreement.

1.26. "**Calendar Year**" means each period of 12 consecutive calendar months commencing on January 1 and ending on December 31, except that the first Calendar Year of the Term will commence on the Effective Date, and the last Calendar Year of the Term will end on the effective date of the termination or expiration of this Agreement.

1.27. "**Change of Control**" means, with respect to a Party, (a) a merger, reorganization, combination, or consolidation of such Party with a Third Party that results in the holders of beneficial ownership of the voting securities or other voting interests of such Party (or, if applicable, the ultimate parent of such Party) immediately prior to such merger, reorganization, combination, or consolidation ceasing to hold beneficial ownership of more than 50% of the combined voting power of the surviving entity or the ultimate parent of the surviving entity immediately after such merger, reorganization, combination or consolidation, (b) a transaction or series of related transactions in which a Third Party, together with its Affiliates, becomes the beneficial owner of 50% or more of the combined voting power of the outstanding securities or other voting interest of such Party, (c) the sale, lease, exchange, contribution, or other transfer (in one transaction or a series of related transactions) to a Third Party of all or substantially all of such Party's assets, or (d) a liquidation or dissolution of such Party or any direct or indirect parent of such Party. Notwithstanding the foregoing, an initial public offering, a *bona fide* venture capital financing, a SPAC transaction, or reverse-merger transaction, in each case, of Metagenomi, will not be considered a Change of Control of Metagenomi.

1.28. "**Claim**" has the meaning set forth in Section 15.1.1 (Escalation).

1.29. "**Clinical Trial**" means any clinical trial in humans that is designed to generate data in support or maintenance of an IND or MAA.

1.30. "**CMO**" means a contract manufacturing organization.

1.31. "[***]" means [***].

1.32. "**Co-Co Option**" has the meaning set forth in Section 5.1.1 (Option Grant).

1.33. "**Co-Co Option Notice**" has the meaning set forth in Section 5.1.2 (Option Period).

1.34. "**Co-Co Option Period**" has the meaning set forth in Section 5.1.2 (Option Period).

1.35. "**Co-Co Products**" means any Licensed Products that are the subject of a Co-Co Program.

1.36. "**Co-Co Program**" means each Drug Discovery Program for which Metagenomi exercises a Co-Co Option in accordance with Section 5.1 (Co-Development and Co-Commercialization Options).

1.37. "**Co-Development and Co-Commercialization Agreement**" has the meaning set forth in Section 5.2 (Development and Commercialization of the Co-Co Products; Opt-Down Right).

1.38. "**Collaboration Activities**" has the meaning set forth in Section 2.4 (Conduct of Collaboration Activities).

1.39. "**Collaboration Program**" means (a) the Exploratory Research Program and (b) each Drug Discovery Program.

1.40. "**Collaboration Program Plans**" has the meaning set forth in Section 2.4 (Conduct of Collaboration Activities).

1.41. "**Collaboration Program Report**" has the meaning set forth in Section 2.6.2 (Collaboration Program Reports).

1.42. "**Collaboration Target**" means, as applicable, any of (a) [***], (b) the Second Wave 1 Target, and (c) the Proposed Targets that Ionis designates in accordance with Section 2.1.4(c) (Effects if a Proposed Target is Available).

1.43. "**Collaboration Term**" means (a) with respect to a Drug Discovery Program, the applicable Drug Discovery Term for such Drug Discovery Program and (b) with respect to the Exploratory Research Program, the Exploratory Research Term.

1.44. "**Combination Product**" has the meaning set forth in Section 1.190 (Net Sales).

1.45. "**Commercial Supply Agreement**" has the meaning set forth in Section 8.1.1 (Metagenomi Supply Term).

1.46. "**Commercialization**" or "**Commercialize**" means with respect to any product, any and all activities directed to the marketing, promotion, patient services, distribution, pricing, reimbursement, pharmacovigilance, import, export, offering for sale, and sale of such product, including seeking and maintaining any required Pricing Approval, but excluding any activities directed to Manufacturing, Development, or Medical Affairs. "**Commercialize**," "**Commercializing**," and "**Commercialized**" will be construed accordingly.

1.47. "**Commercially Reasonable Efforts**" means with respect to the efforts to be expended by any Person with respect to any objective, reasonable, diligent, and good faith efforts to accomplish such objective. With respect to Ionis' obligations set forth in Section 6.1.3 (Development Diligence for the Ionis Products) and Section 6.2.2 (Commercialization Diligence for the Ionis Products), "**Commercially Reasonable Efforts**" means that level, caliber, and quality of efforts and resources reasonably and normally used by biopharmaceutical companies of similar size to Ionis as to a potential or actual product with similar commercial potential and at a similar stage of product life, taking into account with respect to each applicable Licensed System or Licensed Product, (a) issues of safety, efficacy, and product profile, (b) likelihood of receiving Regulatory Approval (including, for clarity, Pricing Approval) of the applicable Licensed Product, (c) regulatory structure involved, (d) feedback provided by any Regulatory Authority, including relating to proposed or approved labeling, (e) competitiveness in the marketplace and anticipated or actual profitability of the product (including based on the Pricing Approval and the cost of goods thereof, where applicable), (f) proprietary position, and (g) other scientific, technical, and business factors deemed relevant by Ionis. "**Commercially Reasonable Efforts**" will be determined on a country-by-country basis in the relevant countries and [***].

1.48. "**Common Ownership Legislation**" means the legislation on conditions for patentability and novelty, as codified at 35 U.S.C. § 102(c) (Common Ownership Under Joint Research Agreements).

1.49. "**Competitive Infringement**" has the meaning set forth in Section 10.3.1 (Notification).

1.50. "**Confidential Information**" means (a) the existence and terms of this Agreement, and (b) with respect to each Party, Know-How, materials, and other proprietary information including data and all other scientific, pre-clinical, clinical, regulatory, Manufacturing, marketing, financial, and commercial information or data that is disclosed, made available to, or provided by or on behalf of such Party to the other Party or to any of the Receiving Party's employees, consultants, Affiliates, or Sublicensees, whether or not specifically marked or designated by the Disclosing Party as confidential; *provided* that, notwithstanding the foregoing, Product-Specific Know-How will be deemed the Confidential Information of Ionis during the Term and thereafter following any expiration, but not termination, of this Agreement.

1.51. "**Confidentiality Agreement**" has the meaning set forth in Section 11.1.2 (Confidential Information of Each Party).

1.52. "**Control**" or "**Controlled**" means the possession by a Party (whether by ownership, license, or otherwise other than pursuant to this Agreement) of, (a) with respect to any materials or other tangible Know-How, the legal authority or right to physical possession of such materials or tangible Know-How, with the right to provide such materials or tangible Know-How to the other Party on the terms set forth herein, (b) with respect to Patent Rights, Regulatory Approvals, Regulatory Submissions, intangible Know-How, or other intellectual property, the legal authority or right to grant a license, sublicense, access, or right to use (as applicable) to the other Party under such Patent Rights, Regulatory Approvals, Regulatory Submissions, intangible Know-How, or other intellectual property on the terms set forth herein, in each case ((a) and (b)), without breaching or otherwise violating the terms of any arrangement or agreement with a Third Party in existence as of the time such Party or its Affiliates would first be required hereunder to grant the other Party such access, right to use, license, or sublicense, and (c) with respect to any product, the legal authority or right to grant an exclusive license or sublicense under Patent Rights that Cover such product or Know-How that relates to such product; *provided* that (i) any Know-How or Patent Rights in-licensed or acquired by Metagenomi or its Affiliates under an Existing Potential Metagenomi In-License Agreement or a Proposed New Metagenomi In-License Agreement will not be deemed "Controlled" by Metagenomi unless and until such agreement becomes a Metagenomi In-License Agreement under Section 9.7.1 (Effective Date Licensed Technology; Existing Metagenomi In-License Agreements) or Section 9.8.2 (Acceptance of a Proposed New In-License Agreement) (and only for so long as it remains a New Metagenomi In-License Agreement hereunder) and (ii) any Know-How or Patent Rights in-licensed or acquired by Ionis or its Affiliates under an Existing Potential Ionis In-License Agreement or a Proposed New Ionis In-License Agreement will not be deemed "Controlled" by Ionis unless and until such agreement becomes an Ionis In-License Agreement under Section 9.7.2 (Existing Potential Ionis In-License Agreements) or Section 9.8.2 (Acceptance of a Proposed New In-License Agreement) (and only for so long as it remains an Ionis In-License Agreement hereunder). Notwithstanding the foregoing, a Party and its Affiliates will not be deemed to "**Control**" any of the foregoing (a) – (c) that are owned or controlled by a Third Party described in the definition of "Change of Control," or such Third Party's Affiliates (other than an Affiliate of such Party prior to the Change of Control), (x) prior to the closing of such Change of Control, except to the extent that any such Patent Rights or Know-How were developed by such Third Party prior to such Change of Control using or incorporating such Party's or its pre-existing Affiliate's Know-How or Patent Rights, or (y) after such Change of Control to the extent that such Patent Rights or Know-How are developed or conceived by such Third Party or its Affiliates (other than such Party) after such Change of Control without using or incorporating such Party's or its pre-existing Affiliate's Know-How or Patent Rights and are not developed or conceived by personnel who were employees or consultants of such Party or its pre-existing Affiliates.

1.53. "**Cost of Goods**" or "**COGS**" means, with respect to any Licensed Product or Licensed System supplied by Metagenomi to Ionis pursuant to Article 8 (Manufacturing): 100% of: (a) [***]; and (b) [***]. The Cost of Goods will exclude any amounts incurred due to gross negligence or willful misconduct of Metagenomi, its Affiliates, or any Third Party. All components of Cost of Goods will be allocated on a basis consistent with the Metagenomi's Accounting Standards and consistent with the cost accounting policy applied by Metagenomi to other products that it produces. For clarity, the Cost of Goods will not include any cost or expense already paid for by Ionis pursuant to this Agreement or any other agreement between the Parties or their Affiliates.

1.54. "**Cover**," "**Covers**," or "**Covered**" means, as to a compound or product and Patent Right, that, in the absence of a license granted under, or ownership of, such Patent Right, the making, using, keeping, selling, offering for sale, or importation of such compound or product would infringe such Patent Right or, as to a pending claim included in such Patent Right, the making, using, keeping, selling, offering for sale, or importation of such compound or product would infringe such Patent Right if such pending claim were to issue in an issued patent without modification.

1.55. "**Development**" or "**Develop**" means, with respect to any product, any and all internal and external research, development, pharmacovigilance activities, and regulatory activities regarding such product, including (a) research, process development, non-clinical testing, toxicology, non- clinical activities, IND-enabling studies, and Clinical Trials, and (b) preparation, submission, review, and development of data or information for the purpose of submission to a Regulatory Authority to obtain authorization to conduct Clinical Trials and to obtain, support, or maintain Regulatory Approval of such product, but excluding any activities directed to Manufacturing, Medical Affairs, or Commercialization. Development will include research, development, and regulatory activities for additional presentations or indications for a product after receipt of Regulatory Approval of such product, including Clinical Trials initiated following receipt of Regulatory Approval or any Clinical Trial to be conducted after receipt of Regulatory Approval that was mandated by the applicable Regulatory Authority as a condition of such Regulatory Approval with respect to an approved indication (such as post-marketing approval studies and observational studies, if required by any Regulatory Authority in any country in the Territory to support or maintain Regulatory Approval for a product in such country, including any phase IV studies). "**Develop**," "**Developing**," and "**Developed**" will be construed accordingly.

1.56. "**Development Candidate**" means a therapeutic agent that is selected by Ionis for further Development and Commercialization in accordance with its customary internal process and pursuant to Section 2.2.6 (Delivery of Development Candidate; Development Candidate Report).

1.57. "**Development Candidate Report**" has the meaning set forth in Section 2.2.6 (Delivery of Development Candidate; Development Candidate Report).

1.58. "**Development Cost Share Notice**" has the meaning set forth in Section 9.3 (Option Exercise Fee).

1.59. "**Development Supply Agreement**" has the meaning set forth in Section 8.1.1 (Metagenomi Supply Term).

1.60. "**Disclosing Party**" has the meaning set forth in Section 11.1.1 (General).

1.61. "**Distracted Party**" has the meaning set forth in Section 3.6.2 (Acquisition of Distracting Product).

1.62. "**Distracting Product**" has the meaning set forth in Section 3.6.2 (Acquisition of Distracting Product).

1.63. "[***]" means, with respect to a Distracting Product, [***].

1.64. "**Drug Discovery Activities**" has the meaning set forth in Section 2.2.1 (Initial Drug Discovery Plan).

1.65. "**Drug Discovery Budget**" has the meaning set forth in Section 2.2.1 (Initial Drug Discovery Plan).

1.66. "**Drug Discovery Plan**" has the meaning set forth in Section 2.2.1 (Initial Drug Discovery Plan).

1.67. "**Drug Discovery Program**" means, on a Collaboration Target-by-Collaboration Target basis, the program of Development undertaken for a Collaboration Target, as set forth in the applicable Drug Discovery Plan for such Collaboration Target.

1.68. "**Drug Discovery Term**" has the meaning set forth in Section 2.2.7 (Drug Discovery Term).

1.69. "**Effective Date**" has the meaning set forth in the Preamble.

1.70. "**EMA**" means the European Medicines Agency or any successor agency or authority thereto.

1.71. "[***]" has the meaning set forth in Section 3 ([***]) of the Exploratory Research Plan attached hereto as Schedule 2.3.1 (Exploratory Research Plan).

1.72. "**Encumbered Proposed Metagenomi Target**" has the meaning set forth in Section 2.7.3(a) (Encumbered Targets).

1.73. "**Encumbered Target**" has the meaning set forth in Section 2.1.4(a) (Encumbered Targets).

1.74. "**Encumbrance**" means any and all liens, encumbrances, charges, mortgages, security interests, hypothecations, easements, rights-of-way or encroachments of any nature whatsoever.

1.75. "**European Union**" or "**EU**" means (a) all countries or territories that are officially part of the European Union, as constituted from time to time, and (b) the United Kingdom.

1.76. "**Exclusivity Field**" means, with respect to a Drug Discovery Program, (a) [***] and (b) any [***].

1.77. "**Executive Officer**" has the meaning set forth in Section 15.1.1 (Escalation).

1.78. "**Existing Potential Ionis In-License Agreement**" has the meaning set forth in Section 9.7.2 (Existing Potential Ionis In-License Agreements).

1.79. "**Existing Potential Metagenomi In-License Agreement**" has the meaning set forth in Section 9.7.2 (Effective Date Licensed Technology; Existing Metagenomi In-License Agreements).

1.80. "**Expedited Dispute**" means any dispute (a) that a Party elects pursuant to Section 4.6.3(b) (Resolution by Baseball Arbitration) to refer to resolution pursuant to Section 15.1.3 (Expedited Dispute Resolution), (b) regarding the determination of any final definitive terms of any Co-Development and Co-Commercialization Agreement pursuant to Section 5.2 (Development and Commercialization of the Co-Co Products; Opt-Down Right), (c) regarding the royalty rate or royalty term for any reversion royalty pursuant to Section 14.3.6(c) (Reversion Royalties), or (d) regarding any other provision of this Agreement that the Parties agree to designate as an Expedited Dispute.

1.81. "**Exploit**" means, with respect to any product, to Develop, have Developed, make, have made, use, have used, perform Medical Affairs, have performed Medical Affairs, offer for sale, have offered for sale, sell, have sold, export, have exported, import, have imported, Manufacture, have Manufactured, Commercialize, have Commercialized, or otherwise exploit such product. "**Exploitation**" and "**Exploiting**" will be construed accordingly.

1.82. "**Exploratory Research Activities**" has the meaning set forth in Section 2.3.1 (Exploratory Research Plan).

1.83. "**Exploratory Research Budget**" has the meaning set forth in Section 2.3.1 (Exploratory Research Plan).

1.84. "**Exploratory Research Plan**" has the meaning set forth in Section 2.3.1 (Exploratory Research Plan).

1.85. "**Exploratory Research Program**" has the meaning set forth in Section 2.3.1 (Exploratory Research Plan).

1.86. "**Exploratory Research Term**" has the meaning set forth in Section 2.3.3 (Exploratory Research Term).

1.87. "**FDA**" means the United States Food and Drug Administration and any successor agency or authority thereto.

1.88. "**FD&C Act**" means the United States Food, Drug, and Cosmetic Act, as amended, and the rules and regulations promulgated thereunder, as may be in effect from time to time.

1.89. "**Field**" means, with respect to a given Drug Discovery Program, [***].

1.90. "**Firewall Procedures**" has the meaning set forth in Section 3.6.2 (Acquisition of Distracting Product).

1.91. "**First Commercial Sale**" means on a Licensed Product-by-Licensed Product and country-by-country basis, the first sale of a Licensed Product by Ionis, its Affiliate, or its Sublicensee to a Third Party resulting in a Net Sale in a particular country; *provided* that the following will not constitute a First Commercial Sale: (a) any sale of a Licensed Product to a Ionis Affiliate or Sublicensee; (b) any sale of a Licensed Product for use in Clinical Trials, pre-clinical studies, or other Development activities at below market price; (c) the disposal or transfer of a Licensed Product for a *bona fide* charitable purpose; or (d) compassionate use and "named patient sales."

1.92. "[***]" means, with respect to an Ionis Program and an Ionis Product Development Milestone Event, [***].

1.93. "**Force Majeure**" has the meaning set forth in Section 15.11 (Force Majeure).

1.94. "**FTE**" has the meaning set forth in Section 1.95 (FTE Rate).

1.95. "**FTE Rate**" means an annual rate of $[***] for the time of an employee for a full-time equivalent ("**FTE**") person year (consisting of a total of 1,800 hours per annum) carrying out research, scientific, or technical work under this Agreement, prorated on a daily basis. Without limiting the foregoing, the FTE Rate will be adjusted annually for each Calendar Year after the Calendar Year ending December 31, 2022 to be equal to the FTE Rate for the preceding Calendar Year [***]. The FTE Rate [***].

1.96. "**Gene Editing**" means [***].

1.97. "**Governmental Authority**" means any arbitrator, court, judicial, legislative, administrative or regulatory authority, commission, department, board, bureau, or body, or other government authority or instrumentality or any Person exercising executive, legislative, judicial, regulatory, or administrative functions of or pertaining to government, whether foreign or domestic, whether federal, state, provincial, municipal, or other.

1.98. "**Guide RNA**" means any single- or double-stranded polynucleotide (including any analogue, variant, or mimic thereof) used for genome sequence site-specific targeting of a Gene Editing protein.

1.99. "**Increased Cost Notice**" has the meaning set forth in Section 2.2.4(c) (Incremental Development Costs).

1.100. "**Incremental Development Costs**" has the meaning set forth in Section 2.2.4(c) (Incremental Development Costs).

1.101. "**IND**" means an investigational new drug application filed with the FDA with respect to a Licensed Product, or an equivalent application filed with the Regulatory Authority of a country in the Territory other than the U.S. (such as an application for a Clinical Trial authorization in the EU).

1.102. "**Indemnitee**" has the meaning set forth in Section 13.4 (Conditions to Indemnification).

1.103. "**Infringement**" has the meaning set forth in Section 10.3.1 (Notification).

1.104. "**Initial Interest Notice**" has the meaning set forth in Section 2.2.4(c) (Incremental Development Costs).

1.105. "**Initiation**" means, with respect to any Clinical Trial, the date on which the first subject in such trial receives his or her initial dose in such Clinical Trial.

1.106. "**Insolvency Event**" has the meaning set forth in Section 14.2.3 (Termination for Insolvency).

1.107. "**Intellectual Property Rights**" means any Know-How, Patent Rights, Trademarks, copyrights, trade secrets, and any other intellectual property rights however denominated throughout the world.

1.108. "**Internal Costs**" means, for any period, the product obtained by multiplying (a) the actual total FTEs (or portion thereof) devoted to the performance of activity under this Agreement during such period, by (b) the applicable FTE Rate.

1.109. "**Ionis**" has the meaning set forth in the Preamble.

1.110. "**Ionis Background Technology**" has the meaning set forth in Section 2.7.1 (Option Grant).

1.111. "**Ionis Collaboration Know-How**" has the meaning set forth in Section 10.1.2(b) (Ionis Collaboration Technology).

1.112. "**Ionis Collaboration Patent Rights**" has the meaning set forth in Section 10.1.2(b) (Ionis Collaboration Technology).

1.113. "**Ionis Collaboration Technology**" has the meaning set forth in Section 10.1.2(b) (Ionis Collaboration Technology).

1.114. [***]

1.115. "**Ionis Field**" means all therapeutic, prophylactic, palliative, analgesic, and diagnostic uses in humans utilizing oligonucleotides that bind to RNA, which such oligonucleotides are subject to a Valid Claim of a Patent Right Controlled by Ionis.

1.116. "**Ionis Indemnitees**" has the meaning set forth in Section 13.2 (Indemnification of Ionis by Metagenomi).

1.117. "**Ionis In-License Agreement**" means (a) any Existing Potential Ionis In-License Agreement that becomes an Ionis In-License Agreement pursuant to Section 9.7.2 (Existing Potential Ionis In-License Agreements) and (b) any New Ionis In-License Agreement.

1.118. "**Ionis IP Option**" has the meaning set forth in Section 2.7.1 (Option Grant).

1.119. "**Ionis IP Option Effective Date**" has the meaning set forth in Section 2.7.3(b) (Effects if a Proposed Metagenomi Target is not an Encumbered Proposed Metagenomi Target).

1.120. "**Ionis' Knowledge**" means the knowledge, after reasonable investigation (including consultation with Ionis' outside intellectual property counsel), of the following: [***] as of the applicable date.

1.121. "**Ionis Licensed Know-How**" means all Know-How that is Controlled by Ionis or any of its Affiliates as of the Effective Date or during the Term (other than Joint Collaboration Know-How) that is necessary or reasonably useful to perform the Metagenomi Activities.

1.122. "**Ionis Licensed Patent Rights**" means any Patent Rights Controlled by Ionis or any of its Affiliates that Cover any Ionis Licensed Know-How.

1.123. "**Ionis Licensed Technology**" means Ionis Licensed Know-How and Ionis Licensed Patent Rights.

1.124. "**Ionis Product Development Milestone Event**" has the meaning set forth in Section 9.4.1 (Ionis Product Development Milestone Payments).

1.125. "**Ionis Product Development Milestone Payment**" has the meaning set forth in Section 9.4.1 (Ionis Product Development Milestone Payments).

1.126. "**Ionis Product Regulatory Milestone Event**" has the meaning set forth in Section 9.4.2 (Ionis Product Regulatory Milestone Payments).

1.127. "**Ionis Product Regulatory Milestone Payment**" has the meaning set forth in Section 9.4.2 (Ionis Product Regulatory Milestone Payments).

1.128. "**Ionis Product Sales Milestone Event**" has the meaning set forth in Section 9.4.3 (Ionis Product Sales Milestone Payment).

1.129. "**Ionis Product Sales Milestone Payment**" has the meaning set forth in Section 9.4.3 (Ionis Product Sales Milestone Payment).

1.130. "**Ionis Products**" means any Licensed Products that are the subject of an Ionis Program.

1.131. "**Ionis Programs**" means each Drug Discovery Program for which Metagenomi does not exercise its Co-Co Option prior to the expiration of the applicable Co-Co Option Period or which Metagenomi opts out in accordance with Section 5.4 (Metagenomi Opt-Out).

1.132. "**Ionis Proprietary Toolbox of Chemical Modifications**" [***] that is Covered by an Ionis Toolbox Patent.

1.133. "**Ionis-Prosecuted Patent Rights**" has the meaning set forth in Section 10.2.1(a).

1.134. "**Ionis Records**" has the meaning set forth in Section 9.13.1 (Books and Records).

1.135. "**Ionis Royalties**" has the meaning set forth in Section 9.6.1 (Ionis Royalty Rates).

1.136. "**Ionis Royalty Rates**" has the meaning set forth in Section 9.6.1 (Ionis Royalty Rates).

1.137. "**Ionis Royalty Report**" has the meaning set forth in Section 9.6.4 (Ionis Royalty Reports).

1.138. "**Ionis Toolbox Patent**" means any Patent Right Controlled by Ionis as of the Effective Date or during the Collaboration Term that [***].

1.139. "**Joint Collaboration Know-How**" has the meaning set forth in Section 10.1.2(c) (Joint Collaboration Technology).

1.140. "**Joint Collaboration Patent Rights**" has the meaning set forth in Section 10.1.2(c) (Joint Collaboration Technology).

1.141. "**Joint Collaboration Technology**" has the meaning set forth in Section 10.1.2(c) (Joint Collaboration Technology).

1.142. "**Joint Research Committee**" or "**JRC**" has the meaning set forth in Section 4.3.1 (Formation and Purpose of the JRC).

1.143. "**Joint Steering Committee**" or "**JSC**" has the meaning set forth in Section 4.1.1 (Formation and Purpose of the JSC).

1.144. "**Know-How**" means any information and materials, including records, discoveries, improvements, modifications, processes, techniques, methods, assays, chemical or biological materials, designs, protocols, formulas, data (including physical data, chemical data, toxicology data, animal data, raw data, clinical data, and analytical and quality control data), dosage regimens, control assays, product specifications, marketing, pricing and distribution costs, inventions, algorithms, technology, forecasts, profiles, strategies, plans, results in any form whatsoever, know-how and trade secrets (in each case, patentable, copyrightable or otherwise).

1.145. "**Licensed Know-How**" means any Know-How that is Controlled by Metagenomi or any of its Affiliates as of the Effective Date or during the Term (including Metagenomi Collaboration Know-How, but excluding Joint Collaboration Know-How) that is necessary or reasonably useful to (a) perform the activities under any Collaboration Program Plan or (b) Exploit any Licensed System or Licensed Product.

1.146. "**Licensed Patent Right**" means any Patent Right Controlled by Metagenomi or any of its Affiliates as of the Effective Date or during the Term (including Metagenomi Collaboration Patent Rights, but excluding Joint Collaboration Patent Rights) that are necessary or reasonably useful to (a) perform any activities under any Collaboration Program Plan or (b) Exploit any Licensed System or Licensed Product. The Licensed Patent Rights as of the Effective Date are set forth on Schedule 1.146 (Licensed Patent Rights); *provided* that any Patent Right that otherwise meets this definition will be deemed a Licensed Patent Right even if such Patent Right is not included on Schedule 1.146 (Licensed Patent Rights).

1.147. "**Licensed Product**" means any therapeutic product, medical therapy, preparation or substance, comprising or employing a Licensed System, in any form or formulation, and whether alone or together with one or more other therapeutically active ingredients, delivery devices, or other components. All Licensed Products comprising the same Licensed System will be considered the same Licensed Product under this Agreement.

1.148. "**Licensed Systems**" means, with respect to a Drug Discovery Program, (a) a Gene Editing protein and a Guide RNA that (i) is designed to modulate the Collaboration Target for such Drug Discovery Program and (ii) either (A) was discovered or Developed by Metagenomi prior to the designation of such Collaboration Target or (B) is discovered or Developed pursuant to the Drug Discovery Plan for such Drug Discovery Program, including any Development Candidate for such Drug Discovery Program or (b) any modification or derivative of any Gene Editing protein or Guide RNA described in clause (a).

1.149. "**Licensed Technology**" means all Licensed Know-How and Licensed Patent Rights and Metagenomi's interest in the Joint Collaboration Technology.

1.150. "**Licensee**" has the meaning set forth in Section 15.10.1.

1.151. "**Licensing Party**" has the meaning set forth in Section 15.10.1.

1.152. "**Losses**" has the meaning set forth in Section 13.1 (Indemnification of Metagenomi by Ionis).

1.153. "**MAA**" means any new drug application or other marketing authorization application, in each case, filed with the applicable Regulatory Authority in a country or other regulatory jurisdiction (and all supplements and amendments thereto), which application is required to commercially market or sell a pharmaceutical or biologic product in such country or jurisdiction, including (a) all New Drug Applications and BLAs submitted to the FDA in the United States in accordance with the FD&C Act with respect to a pharmaceutical product, (b) all MAAs submitted to (i) the EMA under the centralized EMA filing procedure in the EU or (ii) a Regulatory Authority in any EU country if the centralized EMA filing procedure is not used to gain Regulatory Approval in such country, (c) all New Drug Applications submitted to the National Medical Products Administration, or (d) any analogous application or submission with any Regulatory Authority in any other country or regulatory jurisdiction.

1.154. "**Major European Markets**" means each of France, Germany, Spain, Italy, and the United Kingdom.

1.155. "**Major Market**" means each of Japan, the Major European Markets, and the US.

1.156. "**Manufacture**" or "**Manufacturing**" means with respect to any product, any and all activities directed to manufacturing, processing, packaging, labeling, filling, finishing, assembly, quality assurance, quality control, analyses, testing and release, shipping, supply, or storage of such product (or any raw materials, components or process steps involving such product or any companion diagnostic), placebo, or comparator agent, as the case may be, including qualification, validation, and scale-up, pre-clinical, clinical, and commercial manufacture and analytic development, product characterization, and stability testing, but excluding any activities directed to Development, Medical Affairs, or Commercialization. "**Manufacturing**" and "**Manufactured**" will be construed accordingly.

1.157. "**Manufacturing Know-How**" has the meaning set forth in Section 8.5 (Manufacturing After the Metagenomi Supply Term).

1.158. "**Manufacturing Technology Transfer**" has the meaning set forth in Section 8.5 (Manufacturing After the Metagenomi Supply Term).

1.159. "**Medical Affairs**" means any and all activities customarily conducted by the medical affairs department of a pharmaceutical or biotechnology company commercializing products similar to the Licensed Products, including communications with key opinion leaders, medical education, symposia, advisory boards (to the extent related to medical affairs or clinical guidance), activities performed in connection with patient registries, and other medical programs and communications, including educational grants, research grants (including conducting investigator-initiated studies), patient advocacy, and charitable donations to the extent related to medical affairs and not related to activities that involve the promotion, marketing, sale, or other Commercialization of a product and that are not conducted by or on behalf of a Party's or any of its Affiliates' medical affairs departments.

1.160. "**Metagenomi**" has the meaning set forth in the Preamble.

1.161. "**Metagenomi Activities**" has the meaning set forth in Section 3.2.1(a) (Metagenomi Activities License Grant).

1.162. **"Metagenomi Collaboration Cost Reports**" has the meaning set forth in Section 2.5.1 (Reimbursement by Ionis).

1.163. "**Metagenomi Collaboration Know-How**" has the meaning set forth in Section 10.1.2(a) (Metagenomi Collaboration Technology).

1.164. "**Metagenomi Collaboration Patent Rights**" has the meaning set forth in Section 10.1.2(a) (Metagenomi Collaboration Technology).

1.165. "**Metagenomi Collaboration Technology**" has the meaning set forth in Section 10.1.2(a) (Metagenomi Collaboration Technology).

1.166. **[***]**

1.167. "**Metagenomi Drug Discovery Costs**" has the meaning set forth in Section 2.5.1 (Reimbursement by Ionis).

1.168. **"Metagenomi Exploratory Research Costs**" has the meaning set forth in Section 2.5.1 (Reimbursement by Ionis).

1.169. "**Metagenomi Field**" means all therapeutic, prophylactic, palliative, analgesic, and diagnostic uses in humans through the use of the Metagenomi Platform.

1.170. "**Metagenomi In-License Agreements**" means (a) any Existing Potential Metagenomi In-License Agreement that becomes a Metagenomi In-License Agreement pursuant to Section 9.7.1 (Effective Date Licensed Technology; Existing Metagenomi In-License Agreements) and (b) any New Metagenomi In-License Agreement.

1.171. "**Metagenomi Indemnitees**" has the meaning set forth in Section 13.1 (Indemnification of Metagenomi by Ionis).

1.172. "**Metagenomi's Knowledge**" means the knowledge, after reasonable investigation (including consultation with Metagenomi's outside intellectual property counsel), of the following: the [***] or, in each case, their functional equivalent.

1.173. "**Metagenomi Platform**" means Metagenomi's proprietary Gene Editing proteins and Guide RNAs specifically claimed in a Valid Claim of a Patent Right Controlled by Metagenomi.

1.174. "**Metagenomi Platform Know-How**" means any Know-How within Metagenomi Platform as of the Effective Date or during the Term.

1.175. "**Metagenomi Platform Patent Rights**" means any Patent Rights Controlled by Metagenomi or its Affiliates as of the Effective Date or during the Term that Cover any Metagenomi Platform Know-How. The Metagenomi Platform Patent Rights Controlled by Metagenomi or any of its Affiliates as of the Effective Date are listed in Schedule 1.175 (Metagenomi Platform Patent Rights); *provided* that any Patent Right that otherwise meets this definition will be deemed a Metagenomi Platform Patent Right even if such Patent Right is not included on Schedule 1.175 (Metagenomi Platform Patent Rights).

1.176. "**Metagenomi Platform Technology**" means the Metagenomi Platform Patent Rights and the Metagenomi Platform Know-How.

1.177. "**Metagenomi Product**" means any therapeutic product, medical therapy, preparation or substance, comprising or employing a Metagenomi System and discovered by Metagenomi, in any form or formulation, and whether alone or together with one or more other therapeutically active ingredients, delivery devices, or other components. All Metagenomi Products comprising the same Metagenomi System will be considered the same Metagenomi Product under this Agreement.

1.178. "**Metagenomi Product Milestone Event**" has the meaning set forth in Section 9.10.1 (Metagenomi Product Milestone Payments).

1.179. "**Metagenomi Product Milestone Payment**" has the meaning set forth in Section 9.10.1 (Metagenomi Product Milestone Payments).

1.180. "**Metagenomi-Prosecuted Patent Rights**" has the meaning set forth in Section 10.2.2 (Metagenomi-Prosecuted Patent Rights).

1.181. "**Metagenomi Records**" has the meaning set forth in Section 9.13.1 (Books and Records).

1.182. "**Metagenomi Royalties**" has the meaning set forth in Section 9.10.3(a) (Metagenomi Royalty Rates)

1.183. "**Metagenomi Royalty Rate**" has the meaning set forth in Section 9.10.3(a) (Metagenomi Royalty Rates)

1.184. "**Metagenomi Royalty Report**" has the meaning set forth in Section 9.10.4 (Metagenomi Royalty Reports).

1.185. "**Metagenomi Royalty Term**" means, on a Metagenomi Product-by-Metagenomi Product and country-by-country basis, the period during the Term ending on the latest of (a) [***] following the First Commercial Sale (applied *mutatis mutandis*) of a Metagenomi Product in a country, (b) the expiration of the last Valid Claim of a Patent Right within the Ionis Background Technology Covering such Metagenomi Product in such country, or (c) the expiration of any applicable Regulatory Exclusivity obtained for such Metagenomi Product in such country.

1.186. "**Metagenomi Supply Term**" has the meaning set forth in Section 8.1.1 (Metagenomi Supply Term).

1.187. "**Metagenomi System**" means a Gene Editing protein and a Guide RNA that is designed to modulate a Metagenomi Target.

1.188. "**Metagenomi Target**" means each target for which Metagenomi exercises an Ionis IP Option pursuant to Section 2.7 (Ionis Proprietary Toolbox of Chemical Modifications).

1.189. "**MG Manufactured Components**" has the meaning set forth in Section 8.1.1 (Metagenomi Supply Term).

1.190. "**Net Sales**" means the gross invoiced amount for (a) Ionis Products sold by Ionis, its Affiliates, or Sublicensees or (b) Metagenomi Products sold by Metagenomi, its Affiliates or Sublicensees, in each case ((a) and (b) (the "**Selling Party**")), to the extent recognized in the ordinary course of business as revenue by the Selling Party on an accrual basis in accordance with United States Generally Accepted Accounting Principles or, in the case of non-United States sales, other applicable accounting standards after deduction of the following amounts:

(a) normal and customary trade, quantity or prompt settlement discounts (including initial launch stocking discounts, chargebacks, and allowances) actually allowed, *provided* that such discounts are not applied disproportionately to such Licensed Product or Metagenomi Product when compared to the other products of the Selling Party;

(b) amounts repaid or credited by reason of rejection, returns or recalls of goods, rebates or *bona fide* price reductions determined by the Selling Party in good faith;

(c) rebates and similar payments made with respect to sales paid for by any Governmental Authority such as, by way of illustration and not in limitation of the Parties' rights hereunder, Federal or state Medicaid, Medicare or similar state program in the United States or equivalent governmental program in any other country;

(d) refunds or clawbacks of a portion of payments previously paid by the Selling Party for not achieving a predetermined metric or term in an outcome-based contracts;

(e) any invoiced amounts that are not collected by the Selling Party, including bad debts, (applied to Net Sales in the period in which such receivables are written off), provided that any such amounts subsequently collected will be included in Net Sales for the period collected;

(f) excise taxes, value added taxes, sales taxes, consumption taxes and other similar taxes (excluding any income, franchise, or withholding taxes), customs duties, customs levies and import fees imposed on the sale, importation, use or distribution of the Licensed Product, including fees paid pursuant to Section 9008 of the Patient Protection and Affordable Care Act that the Selling Party allocate to sales of the Licensed Product or Metagenomi Product (as applicable) in accordance with such Selling Party's standard policies and procedures consistently applied across its products, as applicable; and

(g) an allowance for transportation costs, distribution expenses, special packaging, insurance charges, and storage and warehousing costs.

Net Sales (including any deductions) will be calculated using the Selling Party's internal audited systems used to report such sales as adjusted for any of the items above not taken into account in such systems, fairly applied and as employed on a consistent basis throughout such Selling Party's operations. To the extent any accrued amounts used in the calculation of Net Sales are estimates, such estimates will be trued-up to actuals (including that, for any estimates of deductions that are later decreased, the difference will be added back to Net Sales). In no event will any particular amount identified above be deducted more than once in calculating Net Sales (*i.e.*, no "double counting" of deductions).

In the case of any sale or other disposal of a product between or among such Party or its Affiliates or Sublicensees for resale, Net Sales will be calculated only on the value charged or invoiced on the first arm's-length sale thereafter to a Third Party (other than a Sublicensee). In the case of any sale that is not invoiced or is delivered before invoice, Net Sales will be calculated at the time all the revenue recognition criteria under such Party's Accounting Standards are met. In the case of any sale or other disposal for value, such as barter or counter-trade, of any Licensed Product or Metagenomi Product (as applicable), or part thereof, other than in an arm's-length transaction exclusively for money, Net Sales will be calculated on the value of the non-cash consideration received or the fair market price (if higher) of such Licensed Product(s) or Metagenomi Product(s) (as applicable) in the country of sale or disposal. Notwithstanding the foregoing, the following will not be included in Net Sales: (1) sales between or among a Party and its Affiliates or Sublicensees (but Net Sales will include sales to the first Third Party (other than a Sublicensee) by a Party or its Affiliates or Sublicensees); and (2) any named patient sales or any sale or other distribution at cost or less than cost for use in any Clinical Trial, for *bona fide* charitable purposes, test marketing program, or for compassionate use.

Solely for purposes of calculating Net Sales, if the Selling Party sells a Licensed Product or Metagenomi Product (as applicable) in the form of a combination product containing a Licensed System or Metagenomi System (as applicable) and one or more other therapeutically or prophylactically active ingredients or delivery devices that is not a Licensed System or Metagenomi System (as applicable) ("**Other Product**") (whether combined in a single formulation or package, as applicable, or formulated separately but packaged under a single label approved by a Regulatory Authority and sold together for a single price) (such combination product, a "**Combination Product**"), Net Sales of such Combination Product for the purpose of determining the payments due to the other Party pursuant to this Agreement will be calculated by [***]. If the gross selling price of a Licensed Product or Metagenomi Product (as applicable) containing such Licensed System or Metagenomi System (as applicable) in such country when sold separately in finished form (*i.e.*, without the other active ingredients or delivery device) can be determined but the gross selling price of the Other Product in such country cannot be determined, then Net Sales in such country for purposes of determining royalty payments will be calculated by [***]. If such separate sales are not made in a country, then Net Sales will be calculated by [***].

If a license agreement or collaboration agreement that is negotiated in an arm's length transaction with an Sublicensee includes a definition of "Net Sales" that differs in any material respect from the definition contained in this Section 1.190 (Net Sales), then the Parties will discuss such material differences and will use reasonable efforts to negotiate in good faith any reasonable modifications to this Section 1.190 (Net Sales) that are necessary to avoid any ambiguity in the calculation of the royalty payment due to a Party under this Agreement for sales of Licensed Products or Metagenomi Products by such Sublicensee.

1.191. "[***]" means [***].

1.192. "**New In-License Agreement**" has the meaning set forth in Section 9.8.2 (Acceptance of a Proposed New In-License Agreement).

1.193. "**New Ionis In-License Agreement**" has the meaning set forth in Section 9.8.2 (Acceptance of a Proposed New In-License Agreement).

1.194. "**New Metagenomi In-License Agreement**" has the meaning set forth in Section 9.8.2 (Acceptance of a Proposed New In-License Agreement).

1.195. "**Non-Withholding Party**" has the meaning set forth in Section 9.17 (Withholding Taxes).

1.196. "**Opt-Down Right**" has the meaning set forth in Section 5.2 (Development and Commercialization of the Co-Co Products; Opt-Down Right).

1.197. "**Opt-Out Date**" has the meaning set forth in Section 5.4 (Metagenomi Opt-Out).

1.198. "**Opt-Out Period**" has the meaning set forth in Section 5.4 (Metagenomi Opt-Out).

1.199. "**Opt-Out Right**" has the meaning set forth in Section 5.4 (Metagenomi Opt-Out).

1.200. "**Option Exercise Fee**" has the meaning set forth in Section 9.3 (Option Exercise Fee).

1.201. "**Option Exercise Notice**" has the meaning set forth in Section 2.7.2 (Option Exercise).

1.202. "**Option Package**" has the meaning set forth in Section 5.1.2 (Option Period).

1.203. "**Option Term**" has the meaning set forth in Section 2.7.2 (Option Exercise).

1.204. "**Other Product**" has the meaning set forth in Section 1.190 (Net Sales).

1.205. "**Out-of-Pocket Costs**" means, with respect to certain activities hereunder, direct expenses actually paid or payable by a Party or its Affiliates to Third Parties and specifically identifiable and incurred to conduct such activities, but excluding any costs that are included in the FTE Rate.

1.206. "**Party**" has the meaning set forth in the Preamble.

1.207. "**Party Vote**" has the meaning set forth in Section 4.6.1 (Committee Decisions).

1.208. "**Patent Rights**" means all rights, title, and interests in and to (a) all national, regional, and international patents and patent applications filed in any country of the world including provisional patent applications and all supplementary protection certificates, (b) all patent applications filed either from such patents, patent applications, or provisional applications or from an application claiming priority to any of the foregoing, including any continuation, continuation-in part, divisional, provisional, converted provisionals and continued prosecution applications, or any substitute applications, (c) any patent issued with respect to or in the future issued from any such patent applications, including utility models, petty patents, design patents and certificates of invention, and (d) any and all extensions or restorations by existing or future extension or restoration mechanisms, including revalidations, reissues, reexaminations and extensions (including any supplementary protection certificates and the like) of the foregoing patents or patent applications.

1.209. "**Payments**" has the meaning set forth in Section 9.17 (Withholding Taxes).

1.210. "**Person**" means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust, incorporated association, joint venture or similar entity or organization, including any Governmental Authority (or any department, agency, or political subdivision thereof).

1.211. "**Phase III Clinical Trial**" means a Clinical Trial that the FDA permits to be conducted under an open IND and that is performed to gain evidence with statistical significance of the efficacy of such product in a target population, and to obtain expanded evidence of safety for such product that is needed to evaluate the overall benefit-risk relationship of such product, to form the basis for approval of an MAA by a Regulatory Authority and to provide an adequate basis for physician labeling, in a manner that meets the requirements of 21 C.F.R. § 312.21(c), as amended (or its successor regulation), or, with respect to any other country or region, the equivalent of such a Clinical Trial in such other country or region. Notwithstanding anything to the contrary set forth in this Agreement, treatment of patients as part of an expanded access program, compassionate sales or use program (including named patient program or single patient program), or an indigent program, in each case, will not be included in determining whether or not a Clinical Trial is a Phase III Clinical Trial or whether a patient has been dosed thereunder.

1.212. "**Pivotal Clinical Trial**" means any (a) Phase III Clinical Trial, or (b) other Clinical Trial of a product on a sufficient number of patients, the results of which, together with prior data and information concerning such product, are intended to be or otherwise are sufficient, without any additional Clinical Trial, to meet the evidentiary standard for demonstrating the safety, purity, efficacy, and potency of such active substance of such product established by a Regulatory Authority in any particular jurisdiction, as evidenced by finalized meeting minutes or another written statement from such Regulatory Authority, and that is intended to support, or otherwise supports, the filing of an MAA by a Regulatory Authority in such jurisdiction (including any bridging study). Notwithstanding any provision to the contrary set forth in this Agreement, treatment of patients as part of an expanded access program, compassionate sales or use program (including named patient program or single patient program), or an indigent program, in each case, will not be included in determining whether or not a Clinical Trial is a Pivotal Clinical Trial or whether a patient has been dosed thereunder.

1.213. "**Pre-Existing Ionis Restriction**" has the meaning set forth in Section 2.7.3(a) (Encumbered Targets).

1.214. "**Pre-Existing Restriction**" has the meaning set forth in Section 2.1.4(a) (Encumbered Targets).

1.215. "**Pricing Approval**" means, in any country where a Governmental Authority authorizes reimbursement for, or approves or determines pricing for, pharmaceutical products, receipt (or, if required to make such authorization, approval or determination effective, publication) of such reimbursement authorization or pricing approval or determination.

1.216. "**Proceeding**" means any action, suit, litigation, arbitration, proceeding (including any civil, criminal, administrative, investigative or appellate proceeding), prosecution, contest, hearing, inquiry, inquest, audit, examination or investigation that is, has been or may in the future be commenced, brought, conducted or heard at law or in equity or before any Governmental Authority.

1.217. "**Product-Specific Know-How**" means any Licensed Know-How that specifically relates to (a) a Licensed System or Licensed Product, (b) any method of making a Licensed System or Licensed Product, or (c) the use of a Licensed System or Licensed Product and no other products that are not Licensed Systems or Licensed Products.

1.218. "**Product-Specific Patent Right**" means any Licensed Patent Right that specifically claims (a) a Licensed System or Licensed Product, (b) any method of making a Licensed System or Licensed Product, or (c) the use of a Licensed System or Licensed Product and no other products that are not Licensed Systems or Licensed Products.

1.219. "**Proposed Metagenomi Target**" has the meaning set forth in Section 2.7.2 (Option Exercise).

1.220. **"Proposed Metagenomi Target Notice**" has the meaning set forth in Section 2.7.2 (Option Exercise).

1.221. "[***]" has the meaning set forth in Section 2.2.4(c) (Incremental Development Costs).

1.222. "**Proposed New In-License Agreement**" has the meaning set forth in Section 9.8.1 (Proposed New In-License Agreements).

1.223. **"Proposed New Ionis In-License Agreement**" has the meaning set forth in Section 9.8.1 (Proposed New In-License Agreements).

1.224. **"Proposed New Metagenomi In-License Agreement**" has the meaning set forth in Section 9.8.1 (Proposed New In-License Agreements).

1.225. "**Proposed Replacement Target**" has the meaning set forth in Section 2.1.3(d) (Substitution Procedure).

1.226. "**Proposed Target**" means any (a) Additional Wave 1 Target, (b) Wave 2 Target, or (c) Proposed Replacement Target.

1.227. "**Prosecuting Party**" means, with respect to any Patent Right, the Party that is responsible for the Prosecution and Maintenance of such Patent Right pursuant to Section 10.2.1 (Ionis- Prosecuting Patent Rights) or Section 10.2.2 (Metagenomi-Prosecuted Patent Rights), as applicable.

1.228. "**Prosecution and Maintenance**" or "**Prosecute and Maintain**" means, with regard to a Patent Right, the preparing, filing, prosecuting, and maintenance of such Patent Right, as well as handling re-examinations and reissues with respect to such Patent Right, together with the conduct of interferences, derivation proceedings, the defense of oppositions, post-grant patent proceedings (such as *inter partes* review and post grant review), and other similar proceedings with respect to the particular Patent Right. For clarity, "**Prosecution and Maintenance**" or "**Prosecute and Maintain**" will not include any other enforcement actions taken with respect to a Patent Right.

1.229. **"Quarterly Reimbursement Payments**" has the meaning set forth in Section 2.5.1 (Reimbursement by Ionis).

1.230. "**Receiving Party**" has the meaning set forth in Section 11.1.1 (General).

1.231. "**Regulatory Approval**" means, with respect to a particular country or other regulatory jurisdiction in the Territory, any approval of an MAA or other approval, product, or establishment license, registration, or authorization of the applicable Regulatory Authority necessary for the commercial marketing or sale of a pharmaceutical or biologic product in such country or other regulatory jurisdiction, including, where applicable, Pricing Approval.

1.232. "**Regulatory Authority**" means, with respect to a country in the Territory, any national (e.g., the FDA), supra-national (e.g., the European Commission, the Council of the European Union, or the EMA), regional, state or local regulatory agency, department, bureau, commission, council or other Governmental Authority involved in the granting of Regulatory Approvals or Pricing Approvals for pharmaceutical products in such country or countries.

1.233. "**Regulatory Exclusivity**" means, with respect to a Licensed Product or Metagenomi Product (as applicable) in a country, any data exclusivity rights or other exclusive right, other than a Patent Right, granted, conferred, or afforded by any Regulatory Authority in such country or otherwise under Applicable Law with respect to such Licensed Product or Metagenomi Product (as applicable) in such country, which either confers exclusive marketing rights with respect to a product or prevents another party from using or otherwise relying on the data supporting the approval of the Regulatory Approval for a product without the prior written authorization of the Regulatory Approval holder, as applicable, such as new chemical entity exclusivity, exclusivity associated with new Clinical Trials necessary to approval of a change (e.g., new indication or use), orphan drug exclusivity, non-patent-related pediatric exclusivity, or any other applicable marketing or data exclusivity, including any such periods under national implementations in the EU of Article 10 of Directive 2001/83/EC, Article 14(11) of Parliament and Council Regulation (EC) No 726/2004, Parliament and Council Regulation (EC) No 141/2000 on orphan medicines, Parliament and Council Regulation (EC) No 1901/2006 on medicinal products for pediatric use and all international equivalents.

1.234. "**Regulatory Strategy**" has the meaning set forth in Section 7.1 (Regulatory Responsibility).

1.235. "**Regulatory Submissions**" means any regulatory application, submission, notification, communication, correspondence, registration, Regulatory Approval, and other filing, made to, received from or otherwise conducted with a Regulatory Authority related to Developing, Manufacturing, obtaining marketing authorization, or otherwise Commercializing a product in a particular country or jurisdiction, including all INDs, CTAs, BLAs, MAAs, and all applications for Regulatory Approval together with all supplements or amendments to any of the foregoing.

1.236. "**Reimbursement Cap**" has the meaning has the meaning set forth in Section 2.5.1 (Reimbursement by Ionis).

1.237. "**Replacement Target Notice**" has the meaning set forth in Section 2.1.3(d) (Substitution Procedure).

1.238. "**Requested CMO**" has the meaning set forth in Section 8.1.2 (Requested CMO).

1.239. "**Requested CMO Contract**" has the meaning set forth in Section 8.1.2 (Requested CMO).

1.240. "**Residual Knowledge**" has the meaning set forth in Section 11.3 (Residual Knowledge).

1.241. "**Reversion IP In-License Agreement**" has the meaning set forth in Section 14.3.6(b) (Third Party Reversion IP).

1.242. "**Reversion License**" has the meaning set forth in Section 14.3.6(a) (Reversion License Grant).

1.243. "**Royalty Bearing Patent Rights**" means, with respect to any Licensed Product, all Licensed Patent Rights that Cover such Licensed Product and that are listed in the then-current edition of the FDA's Purple Book in connection with the Regulatory Approval of such Licensed Product, or in equivalent patent listings in any other country within the Territory.

1.244. "**Royalty Term**" means, on a Licensed Product-by-Licensed Product and country-by-country basis, the period during the Term ending on the latest of (a) 12 years following the First Commercial Sale of a Licensed Product in a country, (b) the expiration of the last Valid Claim of the Royalty Bearing Patent Rights Covering such Licensed Product in such country, or (c) the expiration of any applicable Regulatory Exclusivity obtained for such Licensed Product in such country.

1.245. "**Second Wave 1 Target**" has the meaning set forth in Section 2.1.1(b) (Second Wave 1 Target).

1.246. "**Selling Party**" has the meaning set forth in Section 1.190 (Net Sales).

1.247. "**Subcommittee**" has the meaning set forth in Section 4.2 (Subcommittees).

1.248. "**Subcontractor**" means a Third Party contractor engaged by a Party to perform certain obligations or exercise certain rights of such Party under this Agreement on a fee-for-service basis (including Third Party Distributors, contract research organizations, or contract manufacturing organizations).

1.249. "**Sublicensee**" means a Third Party to whom a Party or any of its Affiliates grants a sublicense under the licenses granted to such Party under this Agreement, as permitted herein, excluding all Subcontractors.

1.250. "**Supply Price**" has the meaning set forth in Section 8.1.1 (Metagenomi Supply Term).

1.251. "**Target Selection and Substitution Period**" has the meaning set forth in Section 2.1.4(b) (Expiration of Pre-Existing Restrictions).

1.252. "**Target Substitution Period**" has the meaning set forth in Section 2.1.3(a) (Discretionary Substitutions).

1.253. "**Technological Infeasibility**" has the meaning set forth in Section 2.1.3(b) (Substitutions for Technological Infeasibility).

1.254. "**Term**" has the meaning set forth in Section 14.1 (Term).

1.255. "**Terminated Combination Products**" has the meaning set forth in Section 14.3.7 (Reversion for Certain Combination Products).

1.256. "**Terminated Country**" means (a) any country in the Territory with respect to which this Agreement is terminated or expires pursuant to Article 14 (Term and Termination), and (b) in the event of termination or expiration of this Agreement in its entirety, all countries in the Territory.

1.257. "**Terminated Products**" means (a) any Licensed Product with respect to which this Agreement is terminated or expires pursuant to Article 14 (Term and Termination), and (b) in the event of termination or expiration of this Agreement in its entirety, all Licensed Products.

1.258. "**Territory**" means all countries of the world and all territories and possessions thereof.

1.259. "**Third Party**" means any Person other than a Party or an Affiliate of a Party.

1.260. "**Third Party Claims**" has the meaning set forth in Section 13.1 (Indemnification of Metagenomi by Ionis).

1.261. "**Third Party Distributor**" means any Third Party that distributes (but does not Develop or Manufacture) a Licensed Product directly to customers.

1.262. "**Third Party Expert**" has the meaning set forth in Section 15.1.3(a).

1.263. "**Third Party Infringement Claim**" has the meaning set forth in Section 10.4 (Defense of Claims Brought by Third Parties).

1.264. "**Third Party IP**" has the meaning set forth in Section 9.6.2(c) (Third Party Payments).

1.265. "**Third Party Payment**" has the meaning set forth in Section 9.6.2(c) (Third Party Payments).

1.266. "**Trademarks**" means all registered and unregistered trademarks, service marks, trade dress, trade names, logos, insignias, symbols, designs, and all other indicia of ownership, and combinations thereof.

1.267. "[***]" has the meaning set forth in Section 2.1.1(a) (Initial Wave 1 Target).

1.268. "[***] **Target Population**" has the meaning set forth in Section 9.5 (Ionis Products for [***] Target Populations).

1.269. "**Unblocking Field**" means [***].

1.270. "**United States**" or "**U.S.**" means the United States of America and all of its districts, territories and possessions.

1.271. "**Upfront Payment**" has the meaning set forth in Section 9.1 (Upfront Payment).

1.272. "**Valid Claim**" means, with respect to a particular country, (a) a claim of any issued and unexpired patent in such country whose validity, enforceability, or patentability has not been terminated by any of the following: (i) irretrievable lapse, abandonment, revocation, dedication to the public, or disclaimer; or (ii) a holding, finding, or decision of invalidity, unenforceability, or non-patentability, from which decision no appeal can be further taken, or (b) a claim within a patent application in such country that has not been pending for more than seven years from the earliest date to which such claim or the applicable patent application is entitled to claim priority and which claim has not been revoked, cancelled, withdrawn, held invalid, or abandoned.

1.273. "**Warranty Technology**" means (a) with respect to any representation or warranty made as of the Effective Date, (i) the Metagenomi Platform Technology in the Field, and (ii) the Licensed Technology that is necessary or reasonably useful to Exploit Licensed Systems and Licensed Products in the Field that are directed to [***], and (b) with respect to any representation or warranty made as of the date on which each new target becomes a Collaboration Target pursuant to Section 2.1.1(b) (Second Wave 1 Target) or Section 2.1.4(c) (Effects if a Proposed Target is Available), the Licensed Technology that is necessary or reasonably useful to Exploit Licensed Systems and Licensed Products in the Field that are directed to such Collaboration Target.

1.274. "**Wave 1 Target**" means each (a) [***], (b) the Second Wave 1 Target, and (c) any Additional Wave 1 Target that Ionis designates in accordance with Section 2.1.4(c) (Effects if a Proposed Target is Available).

1.275. "**Wave 2 Target**" has the meaning set forth in Section 2.1.2 (Wave 2 Target Options).

1.276. "**Wave 2 Target Notice**" has the meaning set forth in Section 2.1.2 (Wave 2 Target Options).

1.277. "**Wave 2 Target Selection Fee**" has the meaning set forth in Section 9.2 (Wave 2 Target Selection Fee).

1.278. "**Wave 2 Target Selection Period**" has the meaning set forth in Section 2.1.2 (Wave 2 Target Options).

1.279. "**Withholding Party**" has the meaning set forth in Section 9.17 (Withholding Taxes).

Schedule 1.114

[***]

[***]

Schedule 1.146

Licensed Patent Rights

[***]

Schedule 1.166

[***]

[***]

Schedule 1.175

Metagenomi Platform Patent Rights

[***]

Schedule 2.1.1(a)

[***]

[***]

Schedule 2.2

[***]

Schedule 2.3.1

Exploratory Research Plan

Attached.

Schedule 8.2

Development Supply Agreement Key Terms

[***]

Schedule 11.4

Press Release(s)

Attached.

Schedule 12.2

Metagenomi Disclosure Schedule

[***]

Schedule 12.4

Ionis Disclosure Schedule

[***]

Exhibit 10.8

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

DEVELOPMENT, OPTION

AND LICENSE AGREEMENT

BY AND BETWEEN

METAGENOMI, INC.

and

AFFINI-T THERAPEUTICS, INC.

June 14, 2022

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DEVELOPMENT, OPTION AND LICENSE AGREEMENT

This DEVELOPMENT, OPTION AND LICENSE AGREEMENT (this "**Agreement**") is entered into as of June 14, 2022 (the "**Effective Date**") by and between Metagenomi, Inc. ("**Metagenomi**"), a Delaware corporation having a place of business at 1545 Park Ave., Emeryville CA 94608, and Affini-T Therapeutics, Inc., a Delaware corporation having a place of business at 343 Arsenal St., Watertown, MA 02472 ("**Affini-T**"). Each of Metagenomi and Affini-T is sometimes referred to individually herein as a "**Party**" and collectively as the "**Parties**".

RECITALS

WHEREAS, Metagenomi is a gene editing company that owns or otherwise controls patent rights and know-how related to gene editing;

WHEREAS, Affini-T is a biotech company developing immune cell receptor-based therapies, preventative treatments and diagnostics;

WHEREAS, the Parties previously entered into an amended and restated side letter on May 28, 2021 and effective as of December 23, 2020 (the "**A&R Side Letter**"), a Stock Issuance Notice and Restricted Stock Agreement dated December 23, 2020 (collectively, the "**Existing RSA**") and an MFN waiver letter dated August 5, 2021 (the "**MFN Waiver**"); and

WHEREAS, the Parties wish to have Metagenomi identify, develop or optimize certain Metagenomi Reagents using Metagenomi's proprietary technology to be used by Affini-T to develop and commercialize gene edited TCR-based therapeutic products in the Fields in the Territory.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the Parties hereto, intending to be legally bound, hereby agree as follows:

1. DEFINITIONS

Whenever used in this Agreement with an initial capital letter, the terms defined in this Article 1 shall have the meanings specified herein and therein.

1.1 "**A&R Side Letter**" is defined in the Preamble.

1.2 "**Affiliate**" means, with respect to either Party, any Person that directly or indirectly controls, is controlled by or is under common control with such Party; for purposes of this definition, the term "control" (including, with correlative meaning, the terms "controlled by" or "under common control with") means direct or indirect ownership of more than fifty percent (50%), including ownership by trusts with substantially the same beneficial interests, of the voting and equity rights of such Person, firm, trust, corporation, partnership or other entity or combination thereof, or the power to direct the management of such Person, firm, trust, corporation, partnership or other entity or combination thereof.

1.3 "**Affini-T**" is defined in the Preamble.

1.4 "**Affini-T Agreement IP**" is defined in Section 10.2.1(b).

1.5 "**Affini-T Agreement Know-How**" is defined in Section 10.2.1(b).

1.6 "**Affini-T Agreement Patent Rights**" is defined in Section 10.2.1(b).

1.7 "**Affini-T Background IP**" means (a) Know-How Controlled by Affini-T on or prior to the Effective Date, or that Affini-T comes to Control outside of this Agreement during the Term, that is necessary for Metagenomi to perform its obligations under this Agreement, and (b) Patent Rights Controlled by Affini-T on or prior to the Effective Date, or that Affini-T comes to Control outside of this Agreement during the Term, that Cover the Know-How described in the foregoing clause (a).

1.8 "**Affini-T Clinical Target**" means, as of the Effective Date, each of [***] and, in each case, including any modification, translation, variation or mutation thereof; provided, that (i) Affini-T may replace up to [***] pursuant to Section 2.1.2(e); (ii) at any given time, the total number of Affini-T Clinical Targets may not exceed six (6); and (iii) each specifically identified target (i.e., the foregoing (a) through (f) and any replacement target added pursuant to Section 2.1.2(e)) will include genetic variants thereof [***] are deemed one Affini-T Clinical Target). For the purposes of this definition:

"**[***]**.

Each of the foregoing targets shall cease to be an Affini-T Clinical Target in the case of termination with respect to such target pursuant to Sections 2.1.2(a) or 12.2 or in the case of replacement of such target pursuant to Section 2.1.2(e).

1.9 "**Affini-T Indemnitees**" is defined in Section 14.2.

1.10 "**Affini-T Indemnity Claims**" is defined in Section 14.2.

1.11 "**Affini-T IP**" means Affini-T Background IP and Affini-T Agreement IP.

1.12 "**Affini-T Patent Rights**" means all (a) Affini-T Agreement Patent Rights and (b) Patents Rights that are included within Affini-T Background IP.

1.13 "**Agreement**" is defined in the Preamble.

1.14 "**Agreement Dispute**" is defined in Section 15.1.4.

1.15 "**Agreement IP**" means, as applicable, Affini-T Agreement IP or Metagenomi Agreement IP.

1.16 "**Agreement Know-How**" means all Know-How identified, conceived, discovered, created, reduced to practice or otherwise Developed in the course of conducting activities under this Agreement (e.g., Metagenomi Research Activities). Agreement Know-How is either "Affini-T Agreement Know-How" or "Metagenomi Agreement Know-How".

1.17 “**Agreement Patent Rights**” means Patent Rights that Cover Agreement Know-How. Agreement Patents Rights are either “Affini-T Agreement Patent Rights” or “Metagenomi Agreement Patent Rights”.

1.18 “**Alliance Manager**” is defined in Section 3.6.

1.19 “**Annual Net Sales**” means the cumulative worldwide Net Sales of an applicable Licensed Product in a given Calendar Year.

1.20 “**Applicable Laws**” means any national, international, federal, state or local laws, treaties, statutes, ordinances, rules and regulations, including any rules, regulations, guidance, guidelines or requirements of any Regulatory Authority, national securities exchange or securities listing organization, that are in effect from time to time during the Term and apply to a particular activity or Party hereunder.

1.21 “**Available**” is defined in Section 2.1.2(e).

1.22 “**Bankruptcy Code**” means the U.S. Bankruptcy Code, as amended from time to time, and the rules and regulations and guidelines promulgated thereunder.

1.23 “**BLA**” means a Biologics License Application, as defined in the FDCA and regulations promulgated thereunder, or any successor application or procedure required to sell a Licensed Product in the United States.

1.24 “**Business Day**” means any day other than: (a) a Saturday, Sunday, or day on which commercial banks in (i) Boston, Massachusetts or (ii) San Francisco, California are authorized or required by Applicable Law to remain closed; or (b) December 25 through January 1.

1.25 “**Calendar Quarter**” means the period beginning on the Effective Date and ending on the last day of the calendar quarter in which the Effective Date falls, and thereafter each successive period of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31; provided, that, the final Calendar Quarter shall end on the last day of the Term.

1.26 “**Calendar Year**” means the period beginning on the Effective Date and ending on December 31 of the calendar year in which the Effective Date falls, and thereafter each successive period of twelve (12) months commencing on January 1 and ending on December 31; provided, that, the final Calendar Year shall end on the last day of the Term.

1.27 “**Change of Control**” means, with respect to a Party, (a) a merger or consolidation of such Party with a Third Party that results in the voting securities of such Party outstanding immediately prior thereto, or any securities into which such voting securities have been converted or exchanged, ceasing to represent at least fifty percent (50%) of the combined voting power of the surviving entity or the parent of the surviving entity immediately after such merger or consolidation, (b) a transaction or series of related transactions in which a Third Party, together

with its Affiliates, becomes the beneficial owner of fifty percent (50%) or more of the combined voting power of the outstanding securities of such Party, or (c) the sale or other transfer to a Third Party of all or substantially all of such Party's assets or all or substantially all of such Party's assets to which this Agreement relates.

1.28 "**Claim**" means a Metagenomi Indemnity Claim or an Affini-T Indemnity Claim, as applicable.

1.29 "**Clinical Trial**" means human clinical trials, including Pivotal Trials.

1.30 "**CoC Affiliate**" is defined in Section 2.2.3.

1.31 "**Combination Product**" means any Licensed Product sold in combination with or includes one or more Other Components.

1.32 "**Commercial License**" means, on an Affini-T Clinical Target-by-Affini-T Clinical Target basis, individually or collectively, an Exclusive License and/or a Non-Exclusive License with respect to such Affini-T Clinical Target, as applicable (based on whether an Option for an Exclusive License and/or a Non-Exclusive License is being elected by Affini-T).

1.33 "**Commercialization**" or "**Commercialize**" means any and all activities directed to the offering for sale and sale of a Licensed Product including activities directed to marketing, promoting, detailing, distributing, importing, selling and offering to sell that Licensed Product, and seeking pricing approvals and reimbursement approvals (in each case, as and to the extent applicable) for that Licensed Product in the Territory, and interacting with Regulatory Authorities regarding the foregoing. When used as a verb, "to **Commercialize**" and "**Commercializing**" means to engage in Commercialization, "**Commercialized**" has a corresponding meaning, and "**Commercial**" means activities in connection with any of the foregoing.

1.34 "**Commercially Reasonable Efforts**" means the [***].

1.35 "**Commercial Quality Agreement**" is defined in Section 7.1.

1.36 "**Commercial Supply Agreement**" is defined in Section 7.1.

1.37 "**Competing Activities**" is defined in Section 1.69.

1.38 "**Competing Business**" is defined in Section 4.2.1(e).

1.39 "**Competing Acquiror**" means [***].

1.40 "**Compulsory License**" means, with respect to a Licensed Product, in a country or territory, a license or rights granted to a Third Party by a Governmental Authority within such country or territory to sell or offer for sale such Licensed Product in such country or territory under any Patents Controlled by Metagenomi, Affini-T or their respective Affiliates, without direct or indirect authorization from Metagenomi, Affini-T or their respective Affiliates, for example a right granted pursuant to requests under 30 August 2003 WTO decision.

1.41 “**Confidential Information**” means (a) with respect to Metagenomi, all information Controlled by Metagenomi and Metagenomi’s Proprietary Materials; and (b) with respect to Affini-T, all information Controlled by Affini-T and Affini-T’s Proprietary Materials, that are, in either case, disclosed or provided by or on behalf of a Party (the “**Disclosing Party**”) to the other Party (the “**Receiving Party**”) or to any of the employees, directors or agents of, or consultants/service providers to, the Receiving Party; provided, that, none of the foregoing shall be deemed Confidential Information if the Receiving Party demonstrates by contemporaneous credible written documentation that: (1) as of the date of disclosure, it is known to the Receiving Party or its Affiliates, other than by virtue of a prior confidential disclosure to such Receiving Party; (2) as of the date of disclosure it is in the public domain, or it subsequently enters the public domain through no fault of the Receiving Party; (3) it is obtained by the Receiving Party from a Third Party having a lawful right to make such disclosure free from any obligation of confidentiality to the Disclosing Party of which the Receiving Party should be reasonably aware; or (4) it is independently developed by or for the Receiving Party without reference to or use of any Confidential Information of the Disclosing Party. For clarity, any combination of Confidential Information shall not be considered in the public domain or in the possession of the Receiving Party merely because individual elements of such Confidential Information are in the public domain or in the possession of the Receiving Party unless the combination and its principles are in the public domain or in the possession of the Receiving Party. Notwithstanding anything herein to the contrary, (i) the terms of this Agreement shall constitute Confidential Information of each Party, and (ii) Confidential Information Controlled by Metagenomi or any of its Affiliates exclusively relating to a Licensed Product or the exploitation thereof, and is not generally related to Metagenomi’s platform or have applicability beyond a Licensed Product (“**Product Information**”) shall be deemed to be Confidential Information of Affini-T (and Affini-T the Disclosing Party, and Metagenomi the Receiving Party, with respect thereto and regardless of the Party initially disclosing the same).

1.42 “**Content**” is defined in Section 9.2.1.

1.43 “**Control**” or “**Controlled**” means with respect to any Proprietary Materials, Know-How, Patent Rights, or other intellectual property rights, that a Party or any of its Affiliates has the legal authority or right (whether by ownership or license) to grant to the other Party a license, covenant not to sue, sublicense, access, or right to use (as applicable) under, in and to such Proprietary Materials, Know-How, Patent Rights, or other intellectual property rights, on the terms and conditions set forth herein, in each case without violating any obligations of the granting Party owed to a Third Party, breaching the terms of any agreement with a Third Party or subjecting the granting Party to any fee or charge. Notwithstanding the foregoing, any New Affiliate of a Party shall not be considered an Affiliate of such Party for the purposes of this definition.

1.44 “**Cover**” or “**Covered**” or “**Covering**” means, with respect to a Licensed Product or component thereof, that the Manufacture, use, offer for sale, sale, import or export of such Licensed Product or component thereof in a particular country by an unlicensed Person would infringe a Valid Claim.

1.45 “**Data Package**” is defined in Section 4.1.

1.46 “**Development**” or “**Develop**” means, with respect to a Licensed Product, all non-clinical and clinical drug development activities that are not Metagenomi Research Activities through and including the performance of Clinical Trials with respect to that Licensed Product, and the preparation and filing of Regulatory Filings and all regulatory affairs related to the foregoing. When used as a verb, “**Developing**” means to engage in Development and “**Developed**” has a corresponding meaning. For clarity, “**Development**” shall not include any Commercialization activities.

1.47 “**Development Quality Agreement**” is defined in Section 7.1.

1.48 **“Development Supply Agreement**” is defined in Section 7.1.

1.49 “**Disclosing Party**” is defined in Section 1.41.

1.50 “**Disputed Matter**” is defined in Section 3.5.1.

1.51 “**DMF**” means a Drug Master File maintained with a Regulatory Authority in any country within the Territory. For the purposes of this Agreement, there are two sub-types of DMF:

“**Affini-T-Relevant DMF**” is defined in Section 5.5.1.

“**MG DMF**” means a DMF that is both Controlled by Metagenomi and covers a Metagenomi Reagent.

1.52 “**Drug Approval Application**” means, with respect to a Licensed Product in any country in the Territory, an application for Marketing Authorization for such Licensed Product in such country, including a BLA or a counterpart of a BLA (or the equivalent filing(s) outside of the United States) in any country in the Territory and all renewals, supplements and amendments to any of the foregoing.

1.53 “**Effective Date**” is defined in the Preamble.

1.54 “**EMA**” means the European Medicines Agency or any successor agency or authority thereto.

1.55 “**Escrow Agent**” is defined in Section 2.1.2(d).

1.56 “**Escrow Materials**” is defined in Section 2.1.2(d).

1.57 “**European Union**” or “**EU**” means the countries of the European Union as constituted from time to time, and any successor thereto.

1.58 “**Exclusive Field**” means the treatment, prevention or diagnosis of any human cancer using products with any engineered Primary TCR alpha/beta T Cells.

1.59 “**Exclusive License**” is defined in Section 2.1.2(b).

1.60 “**Exclusive Option**” is defined in Section 2.1.2.

1.61 "**Exclusively Licensed Product**" means a TCR-based therapy, preventative treatment, or diagnostic for humans that (a) contains or comprises Primary TCR alpha/beta T Cells, (b) is directed to an Affini-T Clinical Target with respect to which an Exclusive Option has been exercised, and (c) is derived from *ex vivo* application of a Metagenomi Reagent.

1.62 "**Executive Officers**" means the [***], or a designee thereof.

1.63 "**Existing RSA**" is defined in the Recitals.

1.64 "**Extended Term**" is defined in Section 12.1.

1.65 "**FCPA**" is defined in Section 4.3.2.

1.66 "**FDA**" means the United States Food and Drug Administration, or any successor agency or authority thereto.

1.67 "**FDCA**" means the United States Federal Food, Drug, and Cosmetic Act, as amended.

1.68 "**Field**" means collectively or individually, as applicable, the Exclusive Field and the Non-Exclusive Field.

1.69 "**Firewalls**" means (a) with respect to Metagenomi, effective walls and screens (whether technical or physical) established between personnel working on Metagenomi Research Activities, on the one hand, and personnel performing any research, development, manufacturing or commercialization of any therapeutic, diagnostic or preventative product directed to an Affini-T Clinical Target in the Exclusive Field on behalf of the CoC Affiliate or engaging in a Competing Business ("**Competing Activities**"), on the other hand, to ensure that no nonpublic information, materials (such as lab notebooks, document management systems or other documented or memorialized Know-How) or non-personnel resources relating to any Affini-T Clinical Target or Licensed Product in the Exclusive Field, or any information, materials or non-personnel resources relating to the Commercial License, or to Affini-T IP, are accessible by Metagenomi (or CoC Affiliate) personnel performing Competing Activities. Notwithstanding the foregoing, Metagenomi personnel that manage or supervise multiple programs at Metagenomi will not be subject to the Firewall themselves; provided that, Metagenomi shall keep all laboratory notebooks, information, materials and records of Metagenomi Research Activities separately from the other laboratory notebooks, information, materials and records of any Competing Activities and shall ensure that any such manager or supervisor personnel is obligated to segregate the information between Metagenomi Research Activities and Competing Activities (e.g. have such information saved or located separately and cannot be viewed at the same time); and (b) with respect to Affini-T, effective walls and screens (whether technical or physical) established between personnel working on any Licensed Product, on the one hand, and personnel of a Competing Acquiror, on the other hand, to ensure that no nonpublic information, materials (such as lab notebooks, document management systems or other documented or memorialized Know-How) or non-personnel resources relating to any Licensed Product, or any information, materials or non-personnel resources relating to the Commercial License, or to Metagenomi IP, are accessible by Competing Acquiror personnel. Notwithstanding the foregoing, Competing Acquiror personnel that manage or supervise multiple programs at Competing Acquiror and

Affini-T will not be subject to the Firewall themselves; provided that, Affini-T shall keep all laboratory notebooks, information, materials and records of Licensed Products separately from the other laboratory notebooks, information, materials and records of the Competing Acquiror and shall ensure that any such manager or supervisor personnel is obligated to segregate the information between Licensed Product and those of the Competing Acquiror (e.g. have such information saved or located separately and cannot be viewed at the same time). "**Firewall**," when used as a verb, means to implement Firewalls.

1.70 "**First Commercial Sale**" means, with respect to a Licensed Product in any country in the Territory, the date of the first sale, transfer or disposition by Affini-T, an Affiliate or Sublicensee to a Third Party in that country after Marketing Authorization for such Licensed Product has been received in that country; provided, that, the following shall not constitute a First Commercial Sale: (a) any sale, transfer or disposition of a Licensed Product at no more than a de minimis charge for academic research, preclinical, clinical, or regulatory purposes; (b) any sale, transfer or disposition of a Licensed Product in connection with any patient assistance programs or for a bona fide charitable purpose, including compassionate use or "named patient sales" or to physicians or hospitals for promotional purposes (including free samples to a level and in an amount which is customary in the industry or which is reasonably proportional to the market for such Licensed Product); or (c) any sale, transfer or disposition of a Licensed Product for use in Clinical Trials, pre-clinical studies or other research or Development activities.

1.71 "**Force Majeure**" means any occurrence beyond the reasonable control of a Party that prevents or substantially interferes with the performance by such Party of any of its obligations hereunder, including by reason of any act of God, flood, fire, explosion, earthquake, casualty or accident, pandemic, epidemic or other health crisis, or war, revolution, civil commotion, act of terrorism, blockage or embargo, or any injunction, law, order, proclamation, regulation, ordinance, demand or requirement of any government or of any subdivision, authority or representative of any such government.

1.72 "**Gene Edits**" means *ex vivo* gene edits.

1.73 "**Good Clinical Practices**" or "**GCP**" means all applicable current Good Clinical Practice standards for the design, conduct, performance, monitoring, auditing, recording, analysis and reporting of Clinical Trials, including, as applicable, (a) as set forth in the ICH, E6 and any other guidelines for good clinical practice for trials on medicinal products in the Territory, (b) the Declaration of Helsinki (2004) as last amended at the 52nd World Medical Association in October 2000 and any further amendments or clarifications thereto, (c) U.S. Code of Federal Regulations Title 21, Parts 50, 54, 56, 312 and 314, as may be amended from time to time, and (d) the equivalent Applicable Laws in any relevant country, each as may be amended and applicable from time to time and in each case ((a)-(d)), that provide for, among other things, assurance that the clinical data and reported results are credible and accurate and protect the rights, integrity, and confidentiality of trial subjects.

1.74 "**Good Laboratory Practice**" or "**GLP**" means the then-current standards for laboratory activities for pharmaceuticals, as set forth in the FDA's Good Laboratory Practice regulations as defined in 21 C.F.R. Part 58 or the Good Laboratory Practice principles of the Organization for Economic Co-Operation and Development ("**OECD**"), and such standards of good laboratory practice as are required by the European Union and other organizations and governmental agencies in countries in which a Licensed Product is intended to be sold, to the extent such standards are not less stringent than the United States Good Laboratory Practice.

1.75 "**Good Manufacturing Practice**" or "**GMP**" means all applicable current Good Manufacturing Practices including, as applicable: (a) the principles detailed in the US Current Good Manufacturing Practices, 21 C.F.R. Parts 4, 210, 211, 601, 610 and 820; (b) European Directive 2003/94/EC and Eudralex 4; (c) the principles detailed in the WHO TRS 986 Annex 2, TRS 961 Annex 6, and TRS 957 Annex 2, and TRS 99 Annex 2; (d) ICH Q7 guidelines; and (e) the equivalent Applicable Laws in any relevant country, each as may be amended and applicable from time to time.

1.76 "**Good Research Practices**" or "**GRP**" means all applicable current Good Research Practices including, as applicable, (a) the Research Quality Association (RQA), 2014, Quality in Research Guidelines for Working in Non-Regulated Research, (b) the World Health Organization (WHO) Quality Practices in Basic Biomedical Research Guidelines, and (c) the equivalent Applicable Laws if any, in any relevant country.

1.77 "**Governance Term**" is defined in Section 3.1.

1.78 "**Government Official**" means: (a) any officer or employee of: (i) a government, or any department or agency thereof; (ii) a government-owned or controlled company, institution, or other entity, including a government-owned hospital or university; or (iii) a public international organization (such as the United Nations, the International Monetary Fund, the International Committee of the Red Cross, and the World Health Organization), or any department or agency thereof; (b) any political party or party official or candidate for public or political party office; and (c) any person acting in an official capacity on behalf of any of the foregoing.

1.79 "**Governmental Authority**" means any multi-national, federal, state, local, municipal, provincial or other governmental authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court or other tribunal).

1.80 "**[***]**" is defined in Section 8.3.1.

1.81 "**ICH**" is defined in Section 4.3.1.

1.82 "**IND**" means (a) an Investigational New Drug Application, as defined in the FDCA and regulations promulgated thereunder, or any successor application or procedure required to initiate clinical testing of a Licensed Product in humans in the United States; (b) a counterpart of an Investigational New Drug Application that is required in any other country or region in the Territory before beginning clinical testing of any Licensed Product in humans in such country or region; and (c) all supplements and amendments to any of the foregoing.

1.83 "**Indemnified Party**" is defined in Section 14.3.

1.84 "**Indemnifying Party**" is defined in Section 14.3.

1.85 “**Infringement**” is defined in Section 11.2.1.

1.86 “**Infringement Notice**” is defined in Section 11.2.1.

1.87 “**Infringement Response**” is defined in Section 11.2.2.

1.88 “**Initial Term**” is defined in Section 12.1.

1.89 “**Initial RSA**” is defined in Section 8.1.1.

1.90 “**iPSC**” means induced pluripotent stem cells.

1.91 “**JSC**” is defined in Section 3.1.

1.92 “**Know-How**” means, collectively, inventions, discoveries, improvements, trade secrets and proprietary methods, whether or not patentable, including: (a) methods of manufacture or use of, and structural and functional information pertaining to, chemical compounds and materials and (b) compositions of matter, data, formulations, processes, techniques, cell differentiation techniques and protocols, cell growth techniques and protocols, cell handling, cell assays, know-how and results, including preclinical, pharmaceutical, toxicological and clinical data.

1.93 “**Letter of Authorization**” means a written statement by the DMF holder permitting a Regulatory Authority to refer information in the DMF in support of another party’s submission, as referenced at 21 C.F.R. §314.420(d).

1.94 “**Licensed Product**” means an Exclusively Licensed Product or a Non-Exclusively Licensed Product.

1.95 “**Losses**” is defined in Section 14.1.

1.96 “**Major European Market**” means each of United Kingdom, Germany, France, Spain, and Italy.

1.97 “**Manufacture**” or “**Manufactured**” or “**Manufacturing**” means any and all activities related to the production, manufacture, formulation, finishing, packaging, labeling, shipping and holding of any Licensed Product, or other product or therapy, or any component, intermediary or precursor thereof, and including process development, process qualification and validation, scale-up, pre-clinical, non-clinical, clinical and commercial manufacture, characterization, quality assurance and quality control, including testing.

1.98 “**Marketing Authorization**” means, with respect to a Licensed Product, the Regulatory Approval required by Applicable Laws to sell such Licensed Product in a country or region in the Territory. For purposes of clarity, (a) “**Marketing Authorization**” in the United States means final approval of a BLA permitting marketing of such Licensed Product in interstate commerce in the United States; (b) “**Marketing Authorization**” in the European Union means marketing authorization for such Licensed Product granted either by an individual country or the EMA; (c) “**Marketing Authorization**” in the United Kingdom means marketing authorization for such Licensed Product granted by the UK Medicines and Healthcare products Regulatory Agency and (d) “**Marketing Authorization**” in other countries means marketing authorization for such Licensed Product granted by the competent authority of such other country.

1.99 “**Metagenomi**” is defined in the Preamble.

1.100 “**Metagenomi Agreement IP**” is defined in Section 10.2.1(a).

1.101 “**Metagenomi Agreement Know-How**” is defined in Section 10.2.1(a).

1.102 “**Metagenomi Agreement Patent Rights**” is defined in Section 10.2.1(a)(ii).

1.103 “**Metagenomi Background IP**” means all Patent Rights and Know-How Controlled by Metagenomi or its Affiliates on or prior to the Effective Date, or that Metagenomi comes to Control outside of this Agreement during the Term, that (a) Cover any Metagenomi Reagent, or Gene Edit using Metagenomi Reagents, (b) are otherwise necessary or useful to make, use, sell, import or practice any Metagenomi Reagents, or Gene Edit using Metagenomi Reagents, or (c) are otherwise necessary to make, use, sell, import or practice, any Licensed Product; provided that in the case of this clause (c) if the applicable Patent Rights or Know-How are not owned by Metagenomi or its Affiliates, then such Patent Rights or Know-How shall only be included as Metagenomi Background IP in accordance with Section 10.1.

1.104 “**Metagenomi Indemnitees**” is defined in Section 14.1.

1.105 “**Metagenomi Indemnity Claims**” is defined in Section 14.1.

1.106 “**Metagenomi In-Licensed IP**” means Patent Rights or Know-How Metagenomi in-licenses after the Effective Date that are necessary to make, use, sell import or practice any Licensed Product.

1.107 “**Metagenomi IP**” means Metagenomi Background IP and Metagenomi Agreement IP.

1.108 “**Metagenomi Patent Rights**” means all (a) Metagenomi Agreement Patent Rights and (b) Patents Rights that are included within Metagenomi Background IP.

1.109 “**Metagenomi Reagent**” means each of (a) [***], or (b) [***] , and (c) [***] For clarity, Metagenomi Reagents shall include [***].

1.110 “**Metagenomi Reagent Improvement**” means [***].

1.111 “**Metagenomi Research Activities**” means activities undertaken by or on behalf of Metagenomi under a Research Plan to identify, develop and optimize Metagenomi Reagents to implement Gene Edits for use in developing and commercializing gene edited TCR-based products.

1.112 “**Milestone**” means the earlier of the date upon which (a) an Affini-T-Relevant DMF that has been approved by the JSC is submitted to the FDA, or (b) an IND that references a MG DMF is accepted by the FDA as evidenced by no objection by the FDA within [***]after the date of submission of such IND (or any amended submission if such amendment restarted the applicable [***]period).

1.113 “**Milestone RSA**” is defined in Section 8.1.2.

1.114 “**MFN Waiver**” is defined in the Recitals.

1.115 “**Net Sales**” means [***]

[***]

1.116 “**New Affiliate**” means a Third Party that becomes an Affiliate of a Party after the Effective Date through or after a Change of Control of such Party, other than (i) such Party, or (ii) any Affiliates of such Party immediately before the consummation of such Change of Control.

1.117 “**Non-Exclusive Field**” means the treatment, prevention or diagnosis of any human cancer using products with engineered Other Immune Cells.

1.118 “**Non-Exclusive License**” is defined in Section 2.1.2(c).

1.119 “**Non-Exclusive Option**” is defined in Section 2.1.2.

1.120 “**Non-Exclusively Licensed Product**” means a TCR-based therapy, preventative treatment, or diagnostic for humans that (a) contains or comprises Other Immune Cells, (b) is directed to an Affini-T Clinical Target with respect to which a Non-Exclusive Option has been exercised, and (c) is derived from ex-vivo application of a Metagenomi Reagent.

1.121 “**OECD**” is defined in Section 1.74.

1.122 “**Option**” is defined in Section 2.1.2.

1.123 “**Option Exercise Fee**” is defined in Section 8.2.

1.124 “**Option Period**” means, with respect to a given Affini-T Clinical Target in a given Field, the time period beginning on the Effective Date and ending at the earlier of: (a) the end of the Initial Term, or if applicable, the Extended Term or (b) ninety (90) days following the date on which Affini-T files an IND for a Licensed Product directed to such Affini-T Clinical Target. For clarity, there are two (2) Option Periods per Affini-T Clinical Target: one (1) for the Exclusive Option and one (1) for the Non-Exclusive Option.

1.125 “**Other Components**” means any (i) [***], or (ii) [***].

1.126 “**Other Immune Cells**” means (a) TCR natural killer (NK) cells derived from iPSC immune cells or (b) TCR T cells derived from donor-derived or iPSC immune cells.

1.127 “**Partial Termination**” is defined in Section 12.2.1 and Section 12.2.2.

1.128 “**Party**” and “**Parties**” are defined in the Preamble.

1.129 "**Patent Costs**" means the costs and expenses incurred by a Party (including reasonable external attorneys' fees) in the conduct of Patent Prosecution or Patent Defense activities, as the case may be, for which that Party is responsible in accordance with this Agreement.

1.130 "**Patent Defense**" means the responsibility for defending any interference, declaratory judgment action, opposition, derivation, *inter partes* review, post-grant review, reexamination, reissue, or other Third Party challenge or similar proceeding alleging the invalidity, unenforceability or non-infringement of any Patent Rights.

1.131 "**Patent Prosecution**" means the responsibility for preparing, filing and prosecuting patent applications (of all types) for any Patent Rights, and for maintaining any Patent Rights.

1.132 "**Patent Rights**" means the rights and interests in and to issued patents and pending patent applications (which, for purposes of this Agreement, include certificates of invention, applications for certificates of invention and priority rights) in any country or region, including all provisional applications, substitutions, continuations, continuations-in-part, divisions, renewals, all letters patent granted thereon, and all reissues, re-examinations and extensions thereof, and all foreign counterparts of any of the foregoing.

1.133 "**PDF**" is defined in Section 15.5.

1.134 "**Person**" means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust, incorporated association, joint venture or similar entity or organization, including a government or political subdivision, department or agency of a government.

1.135 "**Pivotal Trial**" means, with respect to any Licensed Product, a single randomized, placebo or active controlled human clinical trial of a Licensed Product on sufficient numbers of patients that is designed to demonstrate statistically that such Licensed Product is safe and efficacious for its intended use, to evaluate the risk-benefit relationship of such Licensed Product, and to define warnings, precautions and adverse reactions that are associated with such Licensed Product in the dosage range to be prescribed, as described in 21 C.F.R. §312.21(c) or corresponding foreign regulations, and that is intended to support a complete application for Regulatory Approval of such Licensed Product.

1.136 "**Plan Budget**" is defined in Section 4.1.

1.137 [***]

1.138 "**Product Information**" is defined in Section 1.41.

1.139 "**Project Leader**" is defined in Section 3.7.

1.140 “**Proprietary Materials**” means (a) any tangible chemical, biological or physical materials that are Controlled and furnished by the Transferring Party to the Recipient Party, whether or not specifically designated as proprietary by the Transferring Party, or (b) any tangible chemical, biological or physical materials that are generated, conceived or reduced to practice in the conduct of the Research Plan; provided, that “Proprietary Materials” does not include any Licensed Product or Metagenomi Reagents.

1.141 “**Quality Agreement**” means a document developed, approved, and updated by the Parties that sets forth the quality expectations, responsibilities, rights (including, as applicable and agreed upon, audit requirements) and requirements relating to the Manufacture and supply of Metagenomi Reagents, as executed hereunder, or relating to supply of Metagenomi Reagents for Clinical Trials or Commercialization.

1.142 “**Receiving Party**” is defined in Section 1.41.

1.143 “**Recipient Party**” is defined in Section 9.4.

1.144 “**Recovery**” is defined in Section 11.2.5.

1.145 “**Regulatory Approval**” means, with respect to any country or region in the Territory, any approval, establishment license, registration or authorization of any Regulatory Authority required for the Manufacture, use, storage, importation, exportation, transport or distribution of any Licensed Product for use in such country or region.

1.146 “**Regulatory Authority**” means any national, international, regional, state or local regulatory agency, department, bureau, commission, council or other governmental entity with authority over the distribution, importation, exportation, Manufacture, use, storage, transport, clinical testing, pricing, sale or reimbursement of any Licensed Product in the Territory.

1.147 “**Regulatory Filing**” means, collectively: (a) any IND, CTA, Drug Approval Application, establishment license application, DMF, application for designation as an “Orphan Drug” under the Orphan Drug Act, for “Fast Track” status under Section 506 of the FDCA (21 U.S.C. § 356) or for a Special Protocol Assessment under Section 505(b)(4)(B) and (C) of the FDCA (21 U.S.C. § 355(b)(4)(B)) and all other similar filings (including counterparts of any of the foregoing in any country or region in the Territory); (b) all supplements and amendments to any of the foregoing; and (c) all data and other information contained in, and correspondence relating to, any of the foregoing.

1.148 “**Regulatory Representative**” is defined in Section 5.5.3.

1.149 “**Replacement Notice Response**” is defined in Section 2.1.2(e).

1.150 “**Replacement Notice**” is defined in Section 2.1.2(e).

1.151 “**Replacement Right**” is defined in Section 2.1.2(e).

1.152 “**Requesting Party**” is defined in Section 9.2.1.

1.153 “**Research Costs**” is defined in Section 4.2.3.

1.154 “**Research Plan**” is defined in Section 4.1.

1.155 “**Research Plan Completion**” is defined in Section 4.2.1(b).

1.156 “**Retention Period**” is defined in Section 8.4.4.

1.157 “**Reviewing Party**” is defined in Section 9.2.1.

1.158 “**Royalty Term**” means with respect to a Licensed Product, on a country-by-country basis, the period beginning on the date of First Commercial Sale of such Licensed Product in such country and ending on the later of (a) date of expiration or invalidation of the last to expire Valid Claim of a Metagenomi Patent Right in such country that Covers [***] in such country that is included within the Commercial License, (b) [***] after the date of First Commercial Sale of such Licensed Product in such country, and (c) expiration of all regulatory exclusivities for such Licensed Product in such country.

1.159 “**Sublicenseable Metagenomi In-Licensed IP**” is defined in Section 10.1.

1.160 “**Sublicensee**” means any Third Party to which Affini-T or its Affiliate grants a sublicense under the Commercial License.

1.161 “**Supply Failure**” is defined in Section 2.1.2(d).

1.162 “**TCR**” means T-cell receptor.

1.163 “**Term**” is defined in Section 12.1.

1.164 “**Territory**” means every country and territory in the world.

1.165 “**Third Party**” means a Person other than Affini-T and Metagenomi and their respective Affiliates.

1.166 “**Third Party License**” is defined in Section 8.4.2(b).

1.167 “**Third Party Payments**” is defined in Section 8.4.2(b).

1.168 “**Transferring Party**” is defined in Section 9.4.

1.169 “**United States**” or “**U.S.**” means the United States of America and its territories and possessions.

1.170 “**Upstream Agreement**” is defined in Section 10.1.

1.171 “**Valid Claim**” means either (a) a claim of an issued and unexpired patent that has not been revoked or found to be unpatentable, invalid or unenforceable by a court or other government agency of competent jurisdiction, or (b) a claim of a pending patent application, which claim was filed in good faith, has not been pending for more than [***] and has not been abandoned or finally disallowed without the possibility of appeal or refiling of such application.

2. GRANT OF LICENSES; EXCLUSIVITY.

2.1 **Grant of Licenses to Affini-T**.

2.1.1 Research License. Metagenomi hereby grants Affini-T and its Affiliates a non-exclusive, fully paid-up, royalty-free, worldwide license, with the right to grant sublicenses, under, in and to Metagenomi IP for Affini-T to conduct research and Development activities involving Metagenomi Reagents and Licensed Products directed to the applicable Affini-T Clinical Target in each Field prior to Option exercise and expiration of the Option Period (on a Field-by-Field basis) for purposes of determining whether Affini-T will exercise either or both of its Options with respect to any such Affini-T Clinical Target(s).

2.1.2 Commercial License.

(a) On an Affini-T Clinical Target-by-Affini-T Clinical Target basis, Metagenomi hereby grants Affini-T (i) an exclusive option to obtain an Exclusive License ("**Exclusive Option**") and (ii) a non-exclusive option to obtain a Non-Exclusive License ("**Non-Exclusive Option**", and individually or collectively, as applicable, with the Exclusive Option, "**Option**"), in each case of (i) and (ii), with respect to each Affini-T Clinical Target. Affini-T may, at its sole discretion, exercise one or both of its Options (i.e., on a Field-by-Field basis) with respect to an Affini-T Clinical Target by providing written notice to Metagenomi during the Option Period applicable to such Affini-T Clinical Target and such Field by identifying the applicable Affini-T Clinical Target and stating whether an Exclusive License and/or a Non-Exclusive License is being taken with respect to such Affini-T Clinical Target. Affini-T may exercise its Option for an Exclusive License or Non-Exclusive License with respect to a given Affini-T Clinical Target at the same time or at different times; provided, that any such Option exercise must occurring during the applicable Option Period with respect to such Affini-T Clinical Target and Field. During the Term, Metagenomi shall not license or otherwise dispose of any Metagenomi IP (including undertaking any such actions that would result in any given Patent Rights and Know-How no longer qualifying as Controlled by Metagenomi only as result of such actions) in any manner that is or could be inconsistent with the Option rights granted to Affini-T. Upon the expiration of the Option Period for an Affini-T Clinical Target, if Affini-T has not exercised either Option with respect to such Affini-T Clinical Target, then such Affini-T Clinical Target shall cease to be an Affini-T Clinical Target.

(b) Upon Affini-T's exercise of an Exclusive Option with respect to a given Affini-T Clinical Target, Metagenomi shall grant, and hereby does grant, to Affini-T and its Affiliates, without further action from either Party an exclusive (even as to Metagenomi), royalty-bearing (as set forth in Section 8.4), sublicensable (through multiple tiers), worldwide license under all applicable Metagenomi IP to research, Develop, Manufacture or have Manufactured (including the Manufacture of Metagenomi Reagents, subject to Section 2.1.2(d) and, as applicable, the Development Supply Agreement and Commercial Supply Agreement), use, Commercialize and otherwise fully exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that (A) is directed to such Affini-T Clinical Target, (B) contains or comprises Primary TCR alpha/beta T Cells, and (C) is derived from *ex vivo* application of a Metagenomi Reagent (the "**Exclusive License**").

(c) Upon Affini-T's exercise of a Non-Exclusive Option with respect to a given Affini-T Clinical Target, Metagenomi shall grant, and hereby does grant, to Affini-T and its Affiliates, without further action from either Party a non-exclusive, royalty-bearing (as set forth in Section 8.4), sublicensable (through multiple tiers), worldwide license under all applicable Metagenomi IP to research, Develop, Manufacture or have Manufactured (including the Manufacture of Metagenomi Reagents, subject to Section 2.1.2(d) and, as applicable, the Development Supply Agreement and Commercial Supply Agreement), use, Commercialize and otherwise fully exploit any TCR-based therapy, preventative treatment, or diagnostic for humans that (A) is directed to such Affini-T Clinical Target, (B) contains or comprises Other Immune Cells, and (C) is derived from *ex-vivo* application of a Metagenomi Reagent (the "**Non-Exclusive License**").

Notwithstanding the foregoing, the Parties acknowledge and agree that the nature of the Licensed Products is such that Affini-T may inadvertently contravene the Commercial License granted by Metagenomi to Affini-T under Sections 2.1.2(b) or 2.1.2(c) by way of an off-target effect whereby a given Licensed Product or Metagenomi Reagent interacts with a target (that it was not intentionally directed against) other than an Affini-T Clinical Target and that any such unintentional contravention shall not constitute a breach of this Agreement nor give rise to any infringement claims by Metagenomi related to such Licensed Product(s).

(d) Metagenomi shall supply to Affini-T its requirements of Metagenomi Reagents in accordance with the Development Supply Agreement and the Commercial Supply Agreement, as applicable; [***]

(e) [***], Affini-T shall be entitled to [***] Affini-T Clinical Targets with respect to which Affini-T has not exercised its Option ("**Replacement Right**") by providing a written notice to Metagenomi ("**Replacement Notice**"). Affini-T will be entitled to exercise its Replacement Right no more than [***]period. Within[***] after receipt of a Replacement Notice, Metagenomi shall notify Affini-T in writing ("**Replacement Notice Response**") whether, as of the date of the Replacement Notice, the proposed target in the Replacement Notice is Available (as defined below) for an Exclusive License or a Non-Exclusive License and any other limitations that would apply if Affini-T were to add such target as an Affini-T Clinical Target hereunder and subsequently exercise its Option with respect to such target. If the Replacement Notice Response provides that the proposed target is not Available for an Exclusive License or Non-Exclusive License, then Affini-T will be free to provide a Replacement Notice for another proposed target. If the proposed target is Available for an Exclusive License or a Non-Exclusive License, then Affini-T shall have [***] from its receipt of a Replacement Notice Response to determine whether it desires to have such target added as an Affini-T Clinical Target hereunder, by providing a written response to Metagenomi identifying the Affini-T Clinical Target to be replaced and affirming the addition of such target as an Affini-T Clinical Target; provided that if such target is only Available for a Non-Exclusive License (and not Available for an Exclusive License), then Affini-T acknowledges and agrees that by affirming the addition of such target Affini-T will only be able to exercise the Non-Exclusive Option for such target. If such [***]period expires without a response from Affini-T, or Affini-T provides a written response that it does not desire to add such target, then such target shall not become an Affini-T Clinical Target. As used herein "**Available**" means that (i) the proposed target [***], (ii) the proposed target [***], and (iii) the proposed target [***].

2.1.3 Retention of Rights. Notwithstanding the license granted in Section 2.1.1, Metagenomi retains the rights under the Metagenomi Agreement Patent Rights as necessary to conduct its Development and Manufacturing responsibilities with respect to Licensed Products hereunder in accordance with this Agreement (including any Metagenomi Research Activities).

2.1.4 Rights of Reference. Solely for the purpose of obtaining or maintaining Regulatory Approval for a Licensed Product, Metagenomi hereby grants Affini-T the right to cross-reference Metagenomi's or its Affiliate's Regulatory Filings and Regulatory Approvals anywhere in the world to the extent such Regulatory Filings and Regulatory Approvals relate to Licensed Products (or components thereof) and are Controlled by Metagenomi or its Affiliates, and to access any data and Know-How therein and use such data and Know-How in connection with the performance of Affini-T's obligations and exercise of Affini-T rights under this Agreement. In furtherance of the foregoing, Metagenomi shall (or shall cause an applicable Affiliate to) provide a signed statement to this effect, if requested by Affini-T, in accordance with U.S. 21 C.F.R. §314.50(g)(3) or the equivalent as required in any country or region of the Territory, or otherwise provide appropriate notification of such right of Affini-T to the applicable Regulatory Authority.

2.2 **Exclusivity**.

2.2.1 Affini-T Clinical Targets Pre-Option. On an Affini-T Clinical Target-by-Affini-T Clinical Target basis, until the earlier of (a) exercise of an Exclusive Option for such Affini-T Clinical Target; (b) Affini-T's written notice to Metagenomi that it does not desire to exercise its Exclusive Option for such Affini-T Clinical Target; and (c) expiration of the Option Period with respect to the Exclusive Option for such Affini-T Clinical Target; Metagenomi shall not, and shall ensure that none of its Affiliates, (i) engage in the discovery, research, Development, Manufacture, Commercialization or other exploitation of any therapeutic, diagnostic or preventative *ex vivo* gene edited product directed to such Affini-T Clinical Target in the Exclusive Field or (ii) work with any Third Party, including through a grant of any (sub)license to any Third Party, to discover, research, Develop, Manufacture, Commercialize or otherwise exploit any therapeutic, diagnostic or preventative *ex vivo* gene edited product directed to or associated with such Affini-T Clinical Target in the Exclusive Field.

2.2.2 Affini-T Clinical Targets Post-Option. Upon exercise of an Exclusive Option with respect to a given Affini-T Clinical Target, except as necessary to perform its obligations hereunder, Metagenomi shall not, and shall ensure that none of its Affiliates, (i) engage in the discovery, research, Development, Manufacture, Commercialization or other exploitation of any therapeutic, diagnostic or preventative *ex vivo* gene edited product directed to such Affini-T Clinical Target in the Exclusive Field or (ii) work with any Third Party, including through a grant of any (sub)license to any Third Party, to discover, research, Develop, Manufacture, Commercialize or otherwise exploit any therapeutic, diagnostic or preventative *ex vivo* gene edited product directed to or associated with such Affini-T Clinical Target in the Exclusive Field.

2.2.3 Change of Control.

(a) In the event that Metagenomi or its Affiliate acquires or is acquired by a Third Party (by merger, sale, consolidation, reorganization or other change of control (including a Change of Control)), such acquired Party/acquiring Third Party (the "**CoC Affiliate**") shall not be deemed to be in violation of Section 2.2.1 or Section 2.2.2 if such CoC Affiliate (a) covenants in writing to Affini-T that from and after the closing of such acquisition, it will not use, reference or otherwise exploit, directly or indirectly, any (i) Affini-T IP (or other Confidential Information of Affini-T, including Product Information) that is provided by Affini-T under this Agreement for any purpose, or (ii) Metagenomi Agreement IP for any purpose that would result in a breach of Section 2.2.2; (b) establishes and enforces, along with Metagenomi, Firewalls for as long as Metagenomi performs Metagenomi Research Activities; and (c) independently discovers, researches, Develops, Manufactures or Commercializes any therapeutic, diagnostic or preventative product directed to an Affini-T Clinical Target in the Exclusive Field without any aid, use or other exploitation of any Affini-T IP (or other Confidential Information of Affini-T, including Product Information) or Metagenomi Agreement IP.

(b) In the event that Affini-T or its Affiliate is acquired by a Competing Acquiror (by merger, sale, consolidation, reorganization or other change of control (including a Change of Control)), Affini-T shall cause such Competing Acquiror to establish and enforce Firewalls during the Term.

2.3 **Grant of Licenses to Metagenomi**. For so long as any Research Plan is being performed, Affini-T hereby grants Metagenomi and its Affiliates a non-exclusive, fully paid-up, royalty-free, worldwide license, with the right to grant sublicenses, under, in and to Affini-T IP solely for Metagenomi to perform its Development obligations under, and in accordance with, each Research Plan.

2.4 **Potential Co-Development**. The Parties will discuss the potential for co-development and co-commercialization of one or more TCR-based therapeutic products that embody *ex vivo* engineered TCR immune cells made using Metagenomi Reagents based Gene Edits and (a) are directed to targets other than the Affini-T Clinical Targets in the Exclusive Field or (b) are directed to any targets, including Affini-T Clinical Targets, in the Non-Exclusive Field. Any such co-development and co-commercialization relationship would be governed by a separate co-development/co-commercialization agreement to be negotiated and agreed to by the Parties in each Party's sole and absolute discretion. For clarity, neither Party is obligated to co-develop such other products or enter into any such further agreement.

3. GOVERNANCE

3.1 **Establishment of Joint Steering Committee; Governance Term**. Within [***] after the Effective Date, Metagenomi and Affini-T shall establish a joint steering committee (the "**JSC**"). The JSC shall have and perform the responsibilities set forth in this Article 3; provided, that, the JSC shall conduct its activities in good faith and shall not have any authority to amend this Agreement without the mutual written agreement of both Parties. Unless otherwise agreed by the Parties, the term for the JSC shall commence as of the date upon which it is established and continue until the earlier of (a) [***] or (b) [***] ("**Governance Term**"); provided that, the Governance Term with respect to any given Licensed Product will end upon the initiation of a Pivotal Trial with respect to such Licensed Product. From and after the expiration of the Governance Term, this Article 3 shall have no further force or effect, including on a Licensed Product-by-Licensed Product basis in accordance with the proviso in the foregoing sentence.

3.2 **Membership**. Each Party shall designate in writing, in its sole discretion, three (3) representatives to represent it on the JSC. The JSC may change its size from time to time by mutual written consent of the Parties (which consent may be withheld by either Party at its sole discretion) and each Party may replace its representatives at any time upon written notice to the other Party. Each Party shall appoint one or more of its representatives to serve as a co-chairperson of the JSC.

3.3 **Meetings**.

3.3.1 Schedule of Meetings; Agenda. [***], without limitation, the planning needs for each Research Plan and the responsibilities of the JSC. Special meetings of the JSC may be convened by any member upon [***] written notice to the other members; provided, that (a) notice of any special meeting may be waived at any time, either before or after the special meeting and (b) attendance of any member at a special meeting shall constitute a valid waiver of notice of such member. Meetings of the JSC may be held in person or by teleconference or videoconference; provided, that, any meetings held in person shall alternate between the respective offices of the Parties or be held at other locations as may be mutually agreeable to the JSC members. Each Party may invite representatives, presenters or experts of such Party or of its Affiliates as it determines is appropriate, subject to the other Party consenting to such attendance, which consent will not be unreasonably withheld, conditioned or delayed; provided, that any such guest attendees (i) shall not vote or otherwise participate in the decision-making process of the JSC and (ii) are bound by obligations of confidentiality and non-disclosure consistent with Article 9.

3.3.2 Voting; Decisions. At each JSC meeting, the representatives of a Party shall have one (1) collective vote on all matters before the JSC at such meeting. All decisions of the JSC shall be made by unanimous vote, subject to Section 3.5. The JSC may also act by written consent signed by at least [***] designated by each Party. Whenever any action by the JSC is called for hereunder during a time period in which the JSC is not scheduled to meet, the Parties may call a special meeting or circulate a written consent to the JSC in order to enable the JSC to address, and if agreed, take, the action in the requested time period.

3.3.3 Meeting Minutes. With the sole exception of specific items of any JSC meeting minutes to which the JSC cannot agree and which are escalated as provided in Section 3.5, definitive minutes of all meetings of the JSC shall be finalized [***] after the meeting to which the minutes pertain, as follows: (a) within [***] after each JSC meeting, Affini-T's Alliance Manager shall prepare and distribute to all members of the JSC draft minutes of the meeting; (b) the JSC members shall then [***] after receiving such draft minutes to provide comments thereon to the JSC co-chairpersons; (c) upon the expiration of such [***] period, the co-chairpersons shall have an [***] to finalize the minutes; (d) if no comments are received by the JSC co-chairpersons within the [***], the minutes shall be deemed final; and (e) the JSC members shall each sign and date the final minutes. The signature of the JSC members upon the final minutes shall indicate each Party's assent to the minutes. If at any time during the preparation and finalization of JSC meeting minutes, the Parties do not agree on any issue with respect to the minutes, such issue shall be resolved by the Executive Officers pursuant to Section 3.5. The decision resulting from this escalation process shall be recorded by the co-chairpersons in amended finalized minutes for said meeting and if no resolution can be reached than the disagreement shall be reflected in the minutes accordingly.

3.3.4 Expenses. Metagenomi and Affini-T shall each bear all expenses of their respective JSC representatives related to their participation on the JSC and attendance at JSC meetings.

3.4 **Responsibilities**. The JSC responsibilities will include:

3.4.1 overseeing initiation of, progress of, reviewing, approving, amending and updating (as appropriate), each Research Plan;

3.4.2 discussing Metagenomi's performance of the Metagenomi Research Activities;

3.4.3 reviewing and discussing Metagenomi's supply abilities with respect to each Metagenomi Reagent to be utilized in a Licensed Product;

3.4.4 approving each Affini-T-Relevant DMF for submission; and

3.4.5 establishing or abolishing other such working groups or subcommittees, as needed to further the purposes of this Agreement, as mutually agreed by the Parties in writing at the JSC; provided that each such working group or subcommittee shall report to the JSC.

3.5 **Dispute Resolution**.

3.5.1 Generally. The JSC members shall use reasonable efforts in good faith to reach agreement on any and all matters within its responsibility. If, despite such reasonable efforts, agreement on a particular matter that is within the responsibility of the JSC cannot be reached by the JSC within[***] after the JSC first meets to consider such matter or such later date as may be mutually acceptable to the Parties (each such matter, a "**Disputed Matter**"), the Parties shall refer such Disputed Matter to the Executive Officers of the Parties who shall promptly initiate discussions in good faith to resolve such Disputed Matter, and if not resolved by the Executive Officers within [***] from the date the Disputed Matter is first referred to the Executive Officers, then, subject to the limitations set forth in Section 3.5.2, the Executive Officer of Affini-T shall have the right to make the final decision on such Disputed Matter, but shall only exercise such right in good faith after full consideration of the positions of both Parties.

3.5.2 Limitations.

(a) Affini-T cannot exercise its final decision making authority to (i) [***]

(b) If any Disputed Matter involves a matter outside of the decision making authority of the JSC, then such Disputed Matter shall be resolved in accordance with Section 15.1 except as otherwise expressly set forth herein.

3.6 **Alliance Managers**. Each Party will appoint an individual designated as the alliance manager ("**Alliance Manager**"). The Alliance Managers will attend each JSC meeting but will not be a member of the JSC and will be the main point of contact for each Party to exchange information and facilitate communication for general matters concerning this Agreement or Research Plans, to provide support to the JSC and such other committees and working groups as the JSC may establish and to coordinate the communication and feedback from each Alliance Manager's organization.

3.7 **Project Leaders**. Each Party will appoint a project leader for each Research Plan (each a "**Project Leader**"). The Project Leaders will be responsible for the day-to-day exchange of information and communication in connection with its assigned Research Plan(s) and will be the first contact person for the other Party for operational and scientific matters with regard to such Research Plan. The Project Leaders will routinely report on the progress of its assigned Research Plan(s) to the JSC.

4. RESEARCH ACTIVITIES

4.1 **Research Plan**.

4.1.1 Initial Research Plan. From time to time during the Term, Affini-T may draft and propose to the JSC and the JSC shall promptly ([***]) upon receipt of such proposal, consider and subject to Section 3.5, approve research plan(s) for Gene Edits describing the applicable Metagenomi Research Activities (each, a "**Research Plan**"). As of the Effective Date, the Parties have agreed to the Research Plan for [***] attached hereto as Schedule 4.1. Each Research Plan will include a description of all Metagenomi Research Activities to be performed thereunder, a budget for the conduct of such Metagenomi Research Activities ("**Plan Budget**"), a timeline for Metagenomi's performance, key milestones and progress/data/discovery reporting requirements, deliverables, one or more success criteria with respect to such Research Plan and the required contents of the final report and data package to be delivered to Affini-T upon completion of the Research Plan (the "**Data Package**").

4.1.2 Quarterly Review of Research Plan. During each Calendar Quarter JSC meeting, the JSC shall review the contents of each Research Plan, progress under each Research Plan and discuss and mutually agree on any amendment or update (as appropriate) for such Research Plan.

4.2 **Conduct of Research Plan**.

4.2.1 Metagenomi Responsibilities.

(a) Metagenomi shall use Commercially Reasonable Efforts to perform the Metagenomi Research Activities and deliver to Affini-T the Metagenomi Reagents (including, as and to the extent applicable, [***] in the quality and amounts provided in the applicable Research Plan and the Data Package in accordance with the timelines set forth in the applicable Research Plan, and to commit such resources (including employees, agents, consultants, facilities, equipment and materials) as are necessary to comply with such diligence obligation. Metagenomi shall use Commercially Reasonable Efforts to perform its obligations under each Research Plan until such Research Plan has been completed or terminated in accordance with the terms of the Agreement.

(b) Without limiting Metagenomi's supply and transfer obligations under Section 4.2.1(a) and the Development Supply Agreement and Quality Agreement, upon Metagenomi's completion of its obligations, including delivery of all deliverables, and achievement of all success criteria (or all success criteria are achieved except for those expressly waived by Affini-T in writing or those that Metagenomi demonstrates to Affini-T's satisfaction that Metagenomi has used Commercially Reasonable Efforts to achieve without success), set forth in a given Research Plan, Metagenomi shall notify Affini-T in writing of such completion and submit to Affini-T the Data Package for such Research Plan (the "**Research Plan Completion**"). Affini-T acknowledges and agrees that Metagenomi is not providing any guarantee that all success criteria in a Research Plan will be met, and Research Plan Completion will be achieved when all work under the Research Plan has been completed and all success criteria has been achieved, except for those success criteria expressly waived by Affini-T in writing or those that are demonstrated to Affini-T's satisfaction have been the subject of Metagenomi's Commercially Reasonable Efforts to achieve without success. Within [***] after Affini-T's receipt of such notice and Data Package, the JSC shall meet to discuss the Data Package. If Affini-T does not believe Research Plan Completion has been achieved, it shall so notify Metagenomi and the Parties will discuss in good faith the status of the activities under the Research Plan. Affini-T may request any reasonable updates or additional information with respect to the Data Package that are reasonably necessary for Affini-T to exercise its rights under this Agreement with respect to the applicable Metagenomi Reagents. If Affini-T notifies Metagenomi that such Data Package contains inaccuracies or lacks necessary information generated under the Research Plan or is otherwise not complete, the Parties shall confer in good faith with respect to any changes or additions recommended by Affini-T, including the performance by Metagenomi of reasonable additional Metagenomi Research Activities that will be reflected in an updated Research Plan.

(c) Metagenomi shall assign such scientific and technical personnel and allocate such other resources as are reasonably necessary for performing the activities as are assigned to it in each Research Plan and shall perform such activities in accordance with all Applicable Laws (including GRPs and GLPs) in each case to the extent applicable to performance of the relevant Research Plan activities by Metagenomi, the terms and conditions of this Agreement, and within generally accepted professional standards. Metagenomi shall be solely responsible for the safety and health of its employees and consultants, and for compliance with all Applicable Laws related to health, safety and the environment, including providing its employees

and consultants with all required information and training concerning any potential hazards involved in performing such activities and any precautionary measures to protect its employees and consultants from any such hazards. Metagenomi shall reasonably train its personnel assigned to perform activities under this Agreement to ensure compliance with each Research Plan and shall ensure that any personnel so assigned shall be capable of professionally and competently performing the activities assigned to Metagenomi in each Research Plan.

(d) Except as set forth below in Article 7, in performing the Metagenomi Research Activities, Metagenomi shall not have the right to subcontract any of such activities without the prior written consent of Affini-T; provided that Metagenomi shall cause its subcontractors to comply with the provisions of this Agreement in connection with such performance. Metagenomi shall execute a formal written agreement with any such permitted subcontractor governing the provision of services by such subcontractor. Each such subcontractor agreement shall (i) require such subcontractor to comply with the terms and conditions of this Agreement (including those provisions governing intellectual property, confidentiality and audit rights) and (ii) prohibit such subcontractor from further subcontracting. Metagenomi's execution of such a subcontractor agreement shall not relieve Metagenomi of any of its obligations under this Agreement. Metagenomi shall remain jointly and severally liable to Affini-T for any performance or non-performance of any such subcontractor, and Metagenomi hereby expressly waives any requirement that Affini-T exhaust all right, power or remedy, or proceed against any such subcontractor, prior to proceeding directly against Metagenomi.

(e) In the event that Metagenomi or its Affiliate is conducting any discovery, research, development, manufacture, commercialization or other exploitation of any therapeutic, diagnostic or preventative TCR-based therapy directed to an Affini-T Clinical Target other than under this Agreement ("**Competing Business**"), Metagenomi shall establish and enforce Firewalls between such activities and personnel (subject to the terms of Section 1.69) performing Metagenomi Research Activities under this Agreement for so long as Metagenomi performs Metagenomi Research Activities. For clarity, Metagenomi and its Affiliates shall not reference, use or otherwise exploit any Affini-T IP (or other Confidential Information of Affini-T, including Product Information) in conducting or pursuing the Competing Business.

4.2.2 Affini-T Responsibilities. In support of Metagenomi's activities under each Research Plan, Affini-T will provide Metagenomi, subject to Article 9, with access to Know-How (including data and other information) that is Controlled by Affini-T that is necessary or reasonably useful for the performance of such Metagenomi Research Activities.

4.2.3 Research Plan Costs. Affini-T will pay all reasonable costs actually incurred by Metagenomi for the performance of Metagenomi Research Activities under each Research Plan ("**Research Costs**"); provided that, Affini-T is not obligated to pay any costs and expenses that exceed the Plan Budget set forth in the applicable Research Plan and Metagenomi shall not be obligated to provide any services or materials for which it will not be paid under the applicable Plan Budget; provided, further, that in the case it appears that the Plan Budget will be exceeded, the Party identifying such issue shall promptly notify the other Party and the Parties shall discuss in good faith any reasonable adjustments to the Plan Budget. [***] Metagenomi will submit to Affini-T a detailed invoice, including the Metagenomi Research Activities completed and the actual Research Costs incurred in connection with each such Metagenomi Research

Activity pursuant to the Plan Budget as well as appropriate receipts for passthrough costs for the Research Costs that Metagenomi [***] and Affini-T will pay all undisputed invoices (or portions thereof) within[***] of receipt of such invoice pursuant to Section 8.4.5(c); provided that (i) Affini-T may reasonably request Metagenomi to provide additional details, documents or support in connection with any invoice and (ii) Affini-T shall pay all disputed invoices within[***] following resolution of a dispute by the Parties regarding any invoice. Affini-T shall have the right to audit Metagenomi's Research Costs by way of Section 8.4.4 applied *mutatis mutandis* (with appropriate substitution/replacement of relevant Party and subject matter references).

4.3 **Compliance**.

4.3.1 Applicable Laws. Metagenomi shall perform the Metagenomi Research Activities in compliance with all Applicable Laws. For clarity, with respect to each activity performed under the Research Plan that will or would reasonably be expected to generate any results, data, or analyses to be submitted to a Regulatory Authority in support of an IND, each Party shall comply with the regulations and guidance of the FDA that constitute GRP, GLP or GMP (or, if and as appropriate under the circumstances, International Conference on Harmonization ("**ICH**") guidance or other comparable regulation and guidance of any Regulatory Authority in any country or region in the Territory).

4.3.2 Compliance with Anti-Corruption Laws. In connection with this Agreement, each Party will comply with all applicable local, national, and international laws, regulations, and industry codes dealing with government procurement, conflicts of interest, corruption or bribery, including, if applicable, the U.S. Foreign Corrupt Practices Act of 1977, as amended ("**FCPA**"), and any laws enacted to implement the OECD Convention on Combating Bribery of Foreign Officials in International Business Transactions.

4.3.3 Prohibited Conduct. In connection with this Agreement, neither Party has made, offered, given, promised to give, or authorized, and neither Party will not make, offer, give, promise to give, or authorize, any bribe, kickback, payment or transfer of anything of value, directly or indirectly, to any person or to any Government Official for the purpose of: (a) improperly influencing any act or decision of the Person or Government Official; (b) inducing the Person or Government Official to do or omit to do an act in violation of a lawful or otherwise required duty; (c) securing any improper advantage; or (d) inducing the Person or Government Official to improperly influence the act or decision of any organization, including any government or government instrumentality, to assist Metagenomi or Affini-T in obtaining or retaining business.

4.3.4 Certain Standards Applicable to Metagenomi Work. All research done by Metagenomi for non-regulated work under this Agreement will be conducted in accordance with the Research Plan, GRP, and all applicable data privacy and security laws and regulations.

4.3.5 Compliance Audits. Without limiting Section 8.4.4 (which is specific to financial audits) and other Sections cross-referencing to Section 8.4.4, Affini-T shall have the right to audit Metagenomi and the facility(ies) where Metagenomi is performing activities under any Research Plan, including reviewing such documents and records, as is reasonably necessary for assessing Metagenomi's performance of the Research Program. Such audit and document review shall be conducted during business hours no more than [***] and only upon [***]advance notice

by Affini-T and the mutual agreement of the Parties as to the specific date and time for such audit; provided, however, that in the case of audits for cause, the [***] audit limit shall not apply and Affini-T shall request such audit upon at least [***] advance written notice. It is understood that Affini-T undertakes no obligation to inspect, audit or qualify the facility(ies) and any inspection conducted hereunder is for Affini-T's sole interest without undertaking any obligation or liability to Metagenomi or any other person or entity. Any audit under this Section 4.3.5 conducted by or on behalf of Affini-T shall not relieve Metagenomi from any of its obligations or liabilities under this Agreement. Affini-T shall not have the right in connection with any such audit to obtain access to information or materials that are (a) solely related to Metagenomi's collaboration with Third Parties, or (b) related to Metagenomi Background IP that is not licensed to or expected to be licensed to Affini-T under this Agreement (e.g. nuclease systems that are not currently utilized under a Research Plan).

4.4 **Record Keeping**. For so long as any Research Plan is being performed and for [***] thereafter, each Party shall maintain complete and accurate records (paper or electronic as applicable) of its research and Development activities under the Research Plans in sufficient detail, including in sufficient detail for purposes of making patent filings, in good scientific manner, or otherwise in a manner that reflects all work done and results achieved.

4.5 **Target Termination**. At any time during the Term, if Affini-T conclusively determines in good faith that it will not be Developing or Commercializing any Licensed Products with respect to a particular Affini-T Clinical Target, then Affini-T shall promptly notify Metagenomi of such conclusive determination and such Affini-T Clinical Target shall cease to be an Affini-T Clinical Target under this Agreement.

5. DEVELOPMENT ACTIVITIES; REGULATORY ACTIVITIES

5.1 **Responsibility for Development**. As between the Parties, Affini-T shall have the sole right and responsibility, at its sole cost and expense, for the conduct of all Development activities applicable to any Licensed Product in the Territory, including the Manufacture and supply of such Licensed Product in such quantities as required for such Development activities pursuant to this Agreement (subject to Metagenomi's Manufacturing rights and obligations under Article 7).

5.2 **Engagement of Third Party Contractors**. Affini-T, and its Affiliates and Sublicensees, shall have the right to engage Third Party contractors to perform any of its Development activities. Affini-T shall cause its contractors to comply with the provisions of this Agreement in connection with such performance. Affini-T shall execute a formal written agreement with its contractor governing the provision of services by such contractor. Each such contractor agreement shall require such contractor to comply with the applicable terms and conditions of this Agreement (including those provisions governing intellectual property, confidentiality and audit rights). Affini-T's execution of such a contractor agreement shall not relieve Affini-T of any of its obligations under this Agreement. Affini-T shall remain jointly and severally liable to Metagenomi for any performance or non-performance of any such contractor, and Affini-T hereby expressly waives any requirement that Metagenomi exhaust all right, power or remedy, or proceed against any such contractor, prior to proceeding directly against Affini-T.

5.3 **Development Diligence**. Upon Affini-T's exercise of its Exclusive Option or Non-Exclusive Option with respect to a given Affini-T Clinical Target, Affini-T will use Commercially Reasonable Efforts during the Term to Develop, including seeking Regulatory Approval for, at least one (1) Exclusive Licensed Product or Nonexclusive Licensed Product, as applicable, directed to such Affini-T Clinical Target [***].

5.4 **Progress Reports**. From the date of the Option exercise until [***], Affini-T shall provide Metagenomi an annual written update on the progress of its efforts to Develop Licensed Product(s) with respect to such Affini-T Clinical Target, including a high-level summary of material (a) Clinical Trials completed, (b) work-in-progress, (c) current schedules or anticipated events or milestones, and (d) transaction(s) involving Licensed Products, which summaries shall include relevant activities conducted and being conducted by Affini-T's Affiliates or Sublicensees.

5.5 **Regulatory Matters**.

5.5.1 Regulatory Filings Generally. As between the Parties, Affini-T shall have the sole right and responsibility for (i) preparing, filing and maintaining all Regulatory Filings for Licensed Products in the Territory and (ii) reporting to Regulatory Authorities all adverse, including serious, events occurring in any Clinical Trial conducted by or on behalf of Affini-T related to Licensed Products, to the extent required by Applicable Laws. Metagenomi shall prepare and file with the FDA a MG DMF (or an amendment to a pre-existing MG DMF) containing pertinent chemistry manufacturing control (CMC) information regarding the Metagenomi Reagents required for Affini-T's IND submissions (each such MG DMF, an "**Affini-T-Relevant DMF**"); provided that Affini-T shall notify Metagenomi at [***] to Affini-T's first anticipated IND filing (or foreign equivalent) for a Licensed Product, including through an update at the JSC, and Metagenomi shall file such an Affini-T-Relevant DMF at [***]to the date of such anticipated IND filing, subject to JSC approval to so file. Metagenomi hereby grants Affini-T or its designee a right of reference to all MG DMFs in any Regulatory Filing related to the use of the Metagenomi Reagents for a Licensed Product. Metagenomi shall provide Affini-T a copy of any MG DMF submission that also qualifies as an Affini-T-Relevant DMF at [***] prior to the date of such anticipated IND filing; provided that Affini-T shall not have the right to download copies of such Affini-T Relevant DMF. Affini-T shall have the right, but not the obligation, to provide comments and feedback with respect to such proposed DMF submission. Metagenomi shall consider Affini-T's comments and feedback in good faith, including amending a pre-existing DMF as appropriate, and shall provide subsequent iterations of each such Affini-T-Relevant DMF until Affini-T has no further comments or feedback and then the Affini-T Relevant DMF shall be submitted to the JSC for approval. After Metagenomi or its Affiliate submits an Affini-T-Relevant DMF to a Regulatory Authority (following JSC approval to so submit), and upon Affini-T's written request [***] prior to an anticipated IND filing (or foreign equivalent) for such Licensed Product, Metagenomi shall provide to such Regulatory Authority a Letter of Authorization (letter of access or other foreign equivalent) advising such Regulatory Authority that Affini-T has a right of reference with respect to, and permitting such Regulatory Agent the right to reference, the applicable DMF. Upon Affini-T's request, Metagenomi shall update such Letter of Authorization (letter of access or other foreign equivalent) to grant such right of reference to Affini-T's successor or permitted assign.

5.5.2 Licensed Product-Related Regulatory Interactions. Affini-T shall be solely responsible for any communications with any Regulatory Authorities regarding the Licensed Products. In the event that Metagenomi receives any communication from a Regulatory Authority regarding a Licensed Product, Metagenomi shall refer such Regulatory Authority to Affini-T and shall not otherwise communicate with such Regulatory Authority without Affini-T's prior written consent. Affini-T shall have the right to require that Metagenomi make available (at Metagenomi's cost and expense) an appropriate representative to be present, as a silent observer (except as Affini-T may expressly authorize otherwise), during a meeting or substantive telephone conference call with any Regulatory Authorities relating to Metagenomi Reagents.

5.5.3 Regulatory Consultation. Each Party will appoint a representative to discuss regulatory matters related to Metagenomi Reagents and Licensed Products with the other Party on a Calendar Quarter basis (each, "**Regulatory Representative**"), until such time as the Parties agree (each at its own discretion) in writing that such meetings will no longer be held. Such meetings may take place in person or by tele-/video-conference as the Regulatory Representatives may agree between themselves. The Regulatory Representatives shall discuss interactions and filings with Regulatory Authorities relating to: (a) with respect to Metagenomi and Metagenomi Reagents, for so long as there are outstanding Research Plans, all Metagenomi Reagents that are subject of any such Research Plans, and thereafter, all Metagenomi Reagents that are incorporated into one or more Licensed Products; or (b) with respect to Affini-T, Metagenomi Reagents for using Gene Edits to Manufacture Licensed Products.

5.6 **Know-How Sharing; Cooperation**. Promptly after the Effective Date (and in no event longer than [***]after the Effective Date), and from time-to-time thereafter, Metagenomi shall disclose or deliver to Affini-T copies of all Know-How in Metagenomi's or its Affiliate's possession (and will use reasonable efforts to obtain all data and information in Metagenomi's contract researcher's possession) relating to the Development and Commercialization of Licensed Products to the extent necessary or useful for Affini-T's performance or exercise of its rights under this Agreement, including [***]. Metagenomi shall promptly notify Affini-T regarding [***]. Upon Affini-T's reasonable request, Metagenomi will provide technical assistance to Affini-T during such disclosure or delivery set forth in the preceding sentences. Metagenomi shall, [***] reasonably cooperate with Affini-T in the Development of any Licensed Products, including making its employees and non-employee consultants reasonably available to consult with Affini-T on issues arising during Affini-T's Development and in connection with any request related to a Licensed Product or its Development from any Regulatory Authority, including regulatory, scientific, technical and clinical testing issues.

6. COMMERCIALIZATION OF PRODUCTS

6.1 **Responsibility for Commercialization of Licensed Products**. As between the Parties, Affini-T shall be responsible for the Commercialization of Licensed Products in the Territory, including (a) the conduct of all pre-marketing, marketing, promotion, sales, distribution, import and export activities (including securing reimbursement, sales and marketing and conducting any post-marketing trials or databases and post-marketing safety surveillance); (b) reporting of all adverse, including serious, events to Regulatory Authorities if and to the extent required by Applicable Laws; (c) the timing for the launch of Licensed Products and for submitting applications for reimbursement with respect to Licensed Products in any country in the Territory; and (d) booking all sales of Licensed Products in the Territory.

6.2 **Commercialization Diligence**. Upon Affini-T's exercise of its Exclusive Option or Non-Exclusive Option with respect to a given Affini-T Clinical Target and subject to obtaining Regulatory Approval for an Exclusive Licensed Product or Nonexclusive Licensed Product, as applicable, directed to such Affini-T Clinical Target, Affini-T shall use Commercially Reasonable Efforts during the Term to Commercialize at least one (1) Exclusive Licensed Product or Nonexclusive Licensed Product, as applicable, directed to such Affini-T Clinical Target [***].

6.3 **Compliance**. Affini-T shall perform its Commercialization activities in compliance in all material respects with all Applicable Laws.

7. MANUFACTURE AND SUPPLY

7.1 **Metagenomi Reagents Supply**. Metagenomi shall define, subject to the terms and conditions of this Agreement, and the Development Supply Agreement and Development Quality Agreement, or the Commercial Supply Agreement and Commercial Quality Agreement, as applicable, the strategy and plans to manufacture Metagenomi Reagents supplied by Metagenomi and shall keep Affini-T informed on the progress therefor. Subject to Section 2.1.2(d), Metagenomi will supply, and Affini-T will purchase from Metagenomi, all of the Metagenomi Reagents ordered by Affini-T to be used for Gene Edits in the manufacture of Licensed Products for pre-clinical research use pursuant to one or more Research Plans and clinical Development use pursuant to the Development Supply Agreement and Quality Agreement. The Parties will enter into a supply agreement (the "**Development Supply Agreement**") and a Quality Agreement for Development purposes (the "**Development Quality Agreement**") within[***] after Affini-T's exercise of its first Option unless mutually extended by the Parties in writing. Upon Affini-T's request, to be made at a logical time based on JSC discussions with respect thereto (but, in any event, prior to filing for Drug Approval Application) for a Licensed Product, the Parties shall amend the Development Supply Agreement (the "**Commercial Supply Agreement**") and Development Quality Agreement (the "**Commercial Quality Agreement**") to cover the supply of Metagenomi Reagents for Commercial purposes within [***] of such request. The Development Supply Agreement and Development Quality Agreement will include supply amount, cost (for development supply, to be set at Metagenomi's manufacturing costs therefor (as will be further defined) plus a reasonable

mark-up to be set forth in the Development Supply Agreement, and for commercial supply, the Parties will agree on reasonable fixed tier pricing to be set forth in the Commercial Supply Agreement), quality requirements, appropriate supply contingency plans, define supply defaults and remedies therefor, and certain manufacturing and scale up matters and other terms and conditions typically contained in a contract manufacturing services agreement.

7.2 **Agreement Resolution**.

7.2.1 Development Supply Agreement Finalization. If the Parties have not entered into a Development Supply Agreement within [***] after Affini-T's exercise of its first Option or such later date as mutually extended by the Parties in writing, the finalization of such Development Supply Agreement shall be finally resolved by binding arbitration. [***].

7.2.2 Development Quality Agreement Finalization. If the Parties have not entered into a Development Quality Agreement within [***] after Affini-T's exercise of its first Option or such later date as mutually extended by the Parties in writing, the finalization of such Development Quality Agreement shall be finally resolved by binding arbitration. [***]

8. CONSIDERATION

8.1 **Equity Grant**.

8.1.1 Initial Equity Grant. In partial consideration of Metagenomi entering into this Agreement, Affini-T will, promptly following the Effective Date, issue 719,920 shares of Affini-T's common stock to Metagenomi or its Affiliate in accordance with the terms of that certain restricted stock agreement, in substantially the form attached hereto as Schedule 8.1(a) (the "**Initial RSA**"), to be executed by the Parties contemporaneously with the execution of this Agreement.

8.1.2 Milestone Equity Grant. In partial consideration of Metagenomi entering into this Agreement, Affini-T will issue an additional 933,650 shares of Affini-T's common stock to Metagenomi or its Affiliate in accordance with the terms of that certain restricted stock agreement, in substantially the form attached hereto as Schedule 8.1(b) (the "**Milestone RSA**"), to be executed by the Parties promptly following the achievement of the Milestone.

8.2 **Option Exercise Payments**. Within [***] after providing a written notice identifying an Affini-T Clinical Target(s) with respect to which Affini-T wishes to exercise its Option for either an Exclusive License, a Non-Exclusive License or both, Metagenomi shall submit an invoice to Affini-T pursuant to Section 8.4.5(c) and Affini-T shall, within [***] of receipt of such invoice, make the following up to two-times (once for each Field), on an Affini-T Clinical Target-by-Affini-T Clinical Target basis (and corresponding to whether an Exclusive License, a Non-Exclusive License or both is/are taken with respect to such Affini-T Clinical Target), payments to Metagenomi ("**Option Exercise Fee**"):

Option for Commercial License in a Field	Option Exercise Fee for Exclusive License ($ US Dollars)	Option Exercise Fee for Non-Exclusive License ($ US Dollars)
Exercise of First Option in a Field	[***]	[***]
Exercise of Second Option in a Field	[***]	[***]
Exercise of Third Option in a Field	[***]	[***]
Exercise of Fourth Option in a Field	[***]	[***]
Exercise of Fifth Option in a Field	[***]	[***]
Exercise of Sixth Option in a Field	[***]	[***]

8.3 **Milestone Payments**.

8.3.1 Development Milestones. Affini-T shall notify Metagenomi within [***] after the first achievement of each of the following Development milestone events with respect to each Affini-T Clinical Target once for each Field. Metagenomi shall submit an invoice to Affini-T for the applicable payment pursuant to Section 8.4.5(c) and Affini-T shall, within [***] of receipt of such invoice, make the following payments once for each Field, on an Affini-T Clinical Target-by-Affini-T Clinical Target basis (and corresponding to whether the Licensed Product achieving the relevant milestone is an Exclusively Licensed Product or a Non-Exclusively Licensed Product). Each Development milestone shall be payable only once for each Affini-T Clinical Target in each Field once for each Field regardless of the number of Exclusively Licensed Products or Non-Exclusively Licensed Products associated with such Affini-T Clinical Target that achieve such milestone event. In the event a Licensed Product is directed to more than one Affini-T Clinical Target, such Licensed Product shall only trigger payment of applicable Development milestone amounts for a single Affini-T Clinical Target.

Development Milestone Event in a Field	Exclusively Licensed Product Milestone Payment ($ US Dollars)	Non-Exclusively Licensed Product Milestone Payment ($ US Dollars)
[***]	[***]	[***]
[***]	[***]	[***]

Development Milestone Event in a Field	Exclusively Licensed Product Milestone Payment ($ US Dollars)	Non-Exclusively Licensed Product Milestone Payment ($ US Dollars)
Maximum Total Development Milestone Payments	$18,750,000 for each Affini-T Clinical Target if all Development Milestones were achieved by an Exclusively Licensed Product and a Non-Exclusively Licensed Product both directed to such Affini-T Clinical Target [***]	

* For the purposes of this Section 8.3.1, "**[***]**" means the earlier of (a) [***], (b) [***], or (c) [***].

8.3.2 Regulatory Approval Milestones. Affini-T shall notify to Metagenomi within [***] after the first achievement of each of the following Regulatory Approval milestone events with respect to each Affini-T Clinical Target once for each Field. Metagenomi shall submit an invoice for the applicable payment to Affini-T pursuant to Section 8.4.5(c) and Affini-T shall, within [***] of receipt of such invoice, make the following payments once for each Field, on an Affini-T Clinical Target-by-Affini-T Clinical Target basis (and corresponding to whether the Licensed Product achieving the relevant milestone is an Exclusively Licensed Product or a Non-Exclusively Licensed Product). Each Regulatory Approval milestone shall be payable only once for each Affini-T Clinical Target in each Field regardless of the number of Exclusively Licensed Products or Non-Exclusively Licensed Products associated with such Affini-T Clinical Target that achieve such milestone event. In the event a Licensed Product is directed to more than one Affini-T Clinical Target, such Licensed Product shall only trigger payment of applicable Regulatory Approval milestone amounts for a single Affini-T Clinical Target.

Regulatory Approval Milestone Event in a Field	Exclusively Licensed Product Milestone Payment ($ US Dollars)	Non-Exclusively Licensed Product Milestone Payment ($ US Dollars)
[***]	[***]	[***]
[***]	[***]	[***]
[***]	[***]	[***]

Regulatory Approval Milestone Event in a Field	Exclusively Licensed Product Milestone Payment ($ US Dollars)	Non-Exclusively Licensed Product Milestone Payment ($ US Dollars)
Maximum Total Regulatory Approval Milestone Payments	$40,625,000 for each Affini-T Clinical Target if all Regulatory Approval Milestones were achieved by an Exclusively Licensed Product and a Non-Exclusively Licensed Product both directed to such Affini-T Clinical Target [***]	

8.3.3 Commercial Sales Milestones. On a Affini-T Clinical Target-by-Affini-T Clinical Target basis, Affini-T shall notify and pay to Metagenomi within [***] after the first achievement of each of the following Commercial sales milestone events as determined by aggregating Net Sales of all Licensed Products directed to a given Affini-T Clinical Target (i.e., all Exclusively Licensed Products and Non-Exclusively Licensed Products directed to a given Affini-T Clinical Target). Metagenomi shall submit an invoice to Affini-T for the applicable payment pursuant to Section 8.4.5(c) and Affini-T shall, within [***] of receipt of such invoice, make the following one-time payments.

Commercial Sales Milestone Event	Milestone Payment ($ US Dollars)
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
Maximum Total Commercial Sales Milestone Payments	$250,000,000 for each Affini-T Clinical Target [***]

In the event [***] or more Commercial sales milestone events are achieved in the same Calendar Year, Affini-T shall pay to Metagenomi each Commercial sales milestone payment corresponding to the respective Commercial sales milestone event. For the avoidance of doubt, each Commercial sales milestone payment shall be payable one time upon the first achievement of the corresponding Commercial sales milestone event, regardless of the number of times such Commercial sales milestone event may be achieved.

Once the Royalty Term with respect to a given Licensed Product and country has expired, the Net Sales of such Licensed Product in such country shall not count towards cumulative Net Sales for purposes of this Section 8.3.3.

8.3.4 Notice of Missing Payment. If Metagenomi believes any of the foregoing milestone event (Development, Regulatory Approval or Commercial sale) has occurred and it has not received payment of same from Affini-T, it shall so notify Affini-T in writing and shall provide to Affini-T documentation or other information that supports its belief.

8.4 **Payment of Royalties; Royalty Rates; Accounting and Records**.

8.4.1 Payment of Royalties. On a Licensed Product-by-Licensed Product and country-by-country basis, during the applicable Royalty Term for such Licensed Product and country, Affini-T shall pay Metagenomi tiered royalties on the worldwide Annual Net Sales of such Licensed Product at the royalty rates set forth below. No more than one royalty payment shall be due per Licensed Product per Calendar Quarter during the Royalty Term for such Licensed Product.

Annual Net Sales Thresholds (Determined on an Affini-T Clinical Target-by-Affini-T Clinical Target basis)	**Exclusively Licensed Product Royalty Rate**	**Non-Exclusively Licensed Product Royalty Rate**
Annual Net Sales of all Licensed Products directed to a given [***] is less than [***]	[***]	[***]
Annual Net Sales of all Licensed Products directed to a given [***]is equal to or greater than [***]but less than [***]	[***]	[***]
Annual Net Sales of all Licensed Products directed to a given [***]is equal to or greater than [***]but less than [***]	[***]	[***]
Annual Net Sales of all Licensed Products directed to a given [***]Target is equal to or greater than [***]	[***]	[***]

Once the Royalty Term with respect to a given Licensed Product and country has expired, the Net Sales of such Licensed Product in such country shall not count towards cumulative Net Sales for purposes of establishing Net Sales tiers pursuant to this Section 8.4.1.

8.4.2 Adjustments to Royalty Payments.

(a) Notwithstanding anything to the contrary in Section 8.4.1, if any Licensed Product is sold in a country and [***], then the royalties shall be [***], continuing until [***] with respect to such Licensed Product and such country at issue.

(b) If Affini-T, or any of its Affiliates or Sublicensees, is a party to a (sub)license from one or more Third Parties, including any Third Party license to Patent Rights which Cover, or Know-How which relates to a given Licensed Product (or its use or manufacture), because it is necessary or useful for Affini-T, its Affiliate or Sublicensee to avoid infringement of such Patent Right or misappropriation of such Know-How in the Development, Manufacture, Commercialize or other exploitation of a Licensed Product in a given country (each such Third Party license is referred to herein as a "**Third Party License**"), then, [***] of any payments owed by Affini-T or any of its Affiliates or Sublicensees to any such Third Party for such a Third Party License (collectively, the "**Third Party Payments**") shall be creditable against royalties payable to Metagenomi under Section 8.4.1; provided, that in no event will such credit reduce the royalties payable to Metagenomi for a given Calendar Quarter by [***]; provided, further, that if additional reductions would be possible but for the foregoing [***], then such amounts may be rolled forward to reduce future royalty payments. Notwithstanding the foregoing, if the Third Party License is necessary or useful for Affini-T, its Affiliate or Sublicensee to avoid infringement of one or more Patent Rights or misappropriation of Know-How as a result of exploitation of Metagenomi IP or the Metagenomi Reagents in accordance with the terms of this Agreement, then [***] of any Third Party Payments in connection with such Third Party License shall be creditable against payments to Metagenomi under Sections 8.3 and 8.4.1.

(c) If Affini-T is required to grant a Compulsory License to a Third Party with respect to a Licensed Product, as applicable in any country, and such Third Party actually sells such Licensed Product in such country under such Compulsory License, with a royalty rate lower than the applicable royalty rate provided by this Section 8.4, then the Parties shall share all amounts actually received by Affini-T or its Affiliates or Sublicensees from any Compulsory License in consideration of the sale of a Licensed Product less any withholding tax or other taxes as may be required under Applicable Law and actually withheld from such payment due to Affini-T, its Affiliate or Sublicensee, as applicable, [***] with Affini-T's share included in the royalty payments and reports made pursuant to Section 8.4.3.

8.4.3 Payment Dates and Reports. Affini-T shall provide a report showing the Net Sales of each Licensed Product and calculation of the amount of royalty due to Metagenomi within [***] after the end of each Calendar Quarter in which a sale of such Licensed Product occurs, commencing with the Calendar Quarter in which [***]. Metagenomi shall submit an invoice to Affini-T based on such royalty report pursuant to Section 8.4.5(c) and Affini-T shall pay such royalty payments within [***] after receipt of invoice.

8.4.4 Records; Audit Rights. Affini-T and its Affiliates and Sublicensees involved in booking sales of the Licensed Product shall keep and maintain for [***] from the end of the Calendar Year in which Net Sales occurred (the "**Retention Period**") complete and accurate records of gross sales and Net Sales by, as applicable, Affini-T and its Affiliates and Sublicensees of each Licensed Product, in sufficient detail to allow royalties to be determined accurately. Metagenomi shall have the right during the applicable Retention Period to appoint at its expense a nationally recognized independent certified public accountant reasonably acceptable to Affini-T to audit the relevant records of Affini-T and its Affiliates and Sublicensees to verify that the amount of such payment was correctly determined. Affini-T and its Affiliates and Sublicensees shall each make its records available for audit by such nationally recognized independent certified public accountant during regular business hours at such place or places where such records are customarily kept, upon [***]written notice from Metagenomi. Such audit right shall not be exercised by Metagenomi more than once in any Calendar Year or more than once with respect to sales of a particular Licensed Product in a particular period and such audit shall not unreasonably

interfere with or impede Affini-T's or its Affiliate's or sublicensee's business operations. All records made available for audit shall be deemed to be Confidential Information of Affini-T. The results of each audit, if any, shall be provided to and are binding on both Parties absent manifest error; provided, that, Affini-T shall be provided an opportunity to discuss the findings of any such audit with the auditor prior to disclosure of the results thereof to Metagenomi. In the event there was an underpayment by Affini-T hereunder, Affini-T shall promptly (but in any event no later than [***] after Affini-T's receipt of the report so concluding) make payment to Metagenomi of any shortfall. Metagenomi shall bear the full cost of such audit unless such audit discloses an underreporting by Affini-T of [***] or at least [***] of the aggregate amount of royalties payable in any Calendar Year, in which case Affini-T shall reimburse Metagenomi for [***]. In the event there was an overpayment by Affini-T hereunder, Affini-T may, at its discretion, credit such overpayment in the next royalty payment or request Metagenomi to and Metagenomi shall promptly (but in any event no later than [***] after Metagenomi's receipt of the report so concluding) make repayment to Affini-T of any such overage.

8.4.5 Payments; Withholding Tax.

(a) All payments made by Affini-T under this Article 8 shall be made by wire transfer from a banking institution in US Dollars in accordance with instructions given in writing from time to time by Metagenomi; provided however that Affini-T will, or its vendor on behalf of Affini-T, will disburse payments only to Metagenomi's jurisdiction of incorporation or to a jurisdiction in which Metagenomi has a significant business presence.

(b) If Applicable Laws require withholding of income or other taxes imposed upon any payments made by Affini-T to Metagenomi under this Agreement, including any value added tax or sales tax, Affini-T shall (i) make such withholding payments as may be required, (ii) subtract such withholding payments from such payments, (iii) submit appropriate proof of payment of the withholding taxes to Metagenomi within a reasonable period of time, and (iv) promptly provide Metagenomi with all official receipts with respect thereto. Affini-T shall render Metagenomi reasonable assistance in order to allow Metagenomi to obtain the benefit of any present or future treaty against double taxation which may apply to such payments.

(c) All invoices required to be submitted to Affini-T under this Agreement shall be submitted by Metagenomi to Bill.com or such other vendor designated by Affini-T in writing from time to time.

9. TREATMENT OF CONFIDENTIAL INFORMATION; PUBLICITY.

9.1 **Confidentiality**.

9.1.1 Confidentiality Obligations. Metagenomi and Affini-T each recognizes that the other Party's Confidential Information and Proprietary Materials constitute highly valuable assets of such other Party. Metagenomi and Affini-T each agrees that, during the Term and for an additional [***] after termination or expiration of this Agreement, (a) subject to Section 9.1.2, it will not disclose, and will cause its Affiliates not to disclose, any Confidential Information or Proprietary Materials of the other Party, (b) it will not use, and will cause its Affiliates not to use, any Confidential Information or Proprietary Materials of the other Party, except as expressly

permitted in this Agreement, (c) it shall not attempt to reverse engineer, deconstruct or in any way determine the structure or composition of any of the other Party's Proprietary Materials, and (d) it will use the same efforts to protect the other Party's Confidential Information as it does to protect its own similar Confidential Information (but, in any event, no less efforts than a reasonable Person in the industry would use to protect similar information).

9.1.2 Limited Disclosure. Each Disclosing Party agrees that disclosure of its Confidential Information or any transfer of its Proprietary Materials may be made by the Receiving Party to any employee, director or agent of, or consultant to, such Receiving Party or to other Third Parties to enable such other Party to exercise its rights (including Affini-T's right to fully exploit any Commercial License granted to it) or to carry out its responsibilities under this Agreement; provided, that, any such disclosure or transfer shall only be made to Persons who are bound by written obligations of confidentiality and non-use at least as strict as those described in Article 9. In addition, each Disclosing Party agrees that the Receiving Party may disclose Confidential Information of the Disclosing Party (a) on a need-to-know basis to such Receiving Party's professional, legal and financial advisors, (b) as reasonably necessary in connection with an actual or potential (i) permitted license or sublicense of such Receiving Party's rights hereunder, (ii) financing of such Receiving Party in a public or private offering, or (iii) merger, acquisition, consolidation, share exchange or other similar transaction involving such Receiving Party and any Third Party, (c) to any Third Party that is or may be engaged by a Receiving Party to perform services in connection with the Research Plan (or perform services in connection with carrying out Development or Commercialization activities) as necessary to enable such Third Party to perform such services, (d) as reasonably necessary to file, prosecute or maintain Patent Rights, or to file, prosecute or defend litigation related to Patent Rights, in accordance with this Agreement, (e) as reasonably necessary for Regulatory Filings or interactions with Regulatory Authorities, in each case relating to the Licensed Products, or (f) as required by Applicable Laws (including securities laws or regulations and the applicable rules of any public stock exchange in the case of any initial public offering or subsequent public offering or in response to rules or guidance of the United States Internal Revenue Service or other taxing authority, or in other legal processes, including by the rules or regulations of the United States Securities and Exchange Commission or similar regulatory agency in a country other than the United States or of any stock exchange or other securities trading institution); provided, that, in each case of clauses (a) – (c) any such disclosure or transfer shall only be made to Persons who are bound by written obligations of confidentiality and non-use consistent with those described in Article 9 (or industry standards in the case of a disclosure pursuant to clause (b)(ii)).

9.1.3 Requirement to Cooperate to Enable Accurate Public Disclosure. To the extent either Party discloses to the other Party any Confidential Information which is a fact, result or event relating to the Metagenomi Research Activities or the Development, Manufacture or Commercialization of any Licensed Product that the Receiving Party in good faith reasonably believes is insufficient to allow the Receiving Party to fully understand the materiality of such Confidential Information for purposes of determining whether the Receiving Party is required to disclose, to any Governmental Authority or publicly, any such Confidential Information in order to comply with Applicable Laws (including securities laws or regulations and the applicable rules of any public stock exchange), the Disclosing Party agrees to discuss such Confidential Information with the Receiving Party and provide any additional information reasonably necessary to enable the Receiving Party to assess the materiality, and the accuracy and completeness, of such information for such public disclosure purposes as the case may be, which additional information shall be treated as the Disclosing Party's additional Confidential Information and shall be treated in accordance with the terms hereof.

9.2 **Publicity**.

9.2.1 Press Releases. The Parties shall, upon such timing as the Parties jointly agree, issue a joint press release with respect to this Agreement, and each Party may make subsequent public disclosure of the contents of such press release without further approval of the other Party. Subject to the foregoing, except as otherwise permitted under this Article 9, neither Party shall issue a press or news release or make any similar public announcement related to the Research Plan or the terms and conditions of this Agreement without the prior written consent of the other Party. If a Party determines the need to make an announcement related to this Agreement (as distinct from a publication related to a Licensed Product, which is subject to Section 9.2.2) is required by Applicable Laws, it shall, to the extent reasonably practicable and permitted, give the other Party at least [***] advance notice of the text of the announcement so that the other Party will have an opportunity to comment upon the announcement. With respect to any such public disclosure, except for the initial press release described above, the requesting Party (the "**Requesting Party**") shall provide the other Party (the "**Reviewing Party**") with a draft of the Content (as defined in the next sentence) of the draft press release or public disclosure for review, at least [***] (if practicable under the circumstances, or if not practicable, such shorter time) in advance of the issuance of the press release or filing. The word "**Content**" in this Section 9.2.1 means any information relating to the activities contemplated by this Agreement and does not include any other business information of the Requesting Party or information pertaining to the "safe harbor" provisions of the U.S. Private Securities Litigation Reform Act of 1995 relating to "forward-looking statements." The Reviewing Party may notify the Requesting Party of any reasonable objections or suggestions that the Reviewing Party may have regarding the Content in the proposed public disclosure provided for review, and the Requesting Party shall reasonably consider any such objections or suggestions that are provided in a timely manner. The Requesting Party shall use diligent and good faith efforts to adopt the reasonable requests of the Reviewing Party with respect to its Confidential Information.

9.2.2 Right to Publish/Present. Notwithstanding the foregoing or anything to the contrary in this Agreement, except as set forth in the last sentence of this Section 9.2.2, Affini-T shall have the sole right to publish or publicly present all results or any and all milestone events achieved with respect to the research (including arising from or relating to the Metagenomi Research Activities), Development, Manufacture or Commercialization of any Licensed Product; provided, that, to the extent such publication contains Metagenomi's Confidential Information, Affini-T shall submit a draft of any proposed press release, manuscript, abstract or speech to Metagenomi at least [***] prior to any such submission for publication and at least [***] prior to any such oral presentation and Metagenomi shall have the right to notify Affini-T in writing within such [***]or [***], as applicable, period if it reasonably determines that such draft contains Confidential Information of Metagenomi, in which case Affini-T shall remove such Confidential Information from the proposed press release, manuscript, abstract or speech. Subject to the foregoing portion of this Section 9.2.2, Metagenomi shall have the right to publish or present without the prior written consent of Affini-T so long as no Confidential Information of Affini-T is included in any such publication or presentation (including no Product Information).

9.3 **Permitted Publication**. Notwithstanding Section 9.2, either Party may include in a public disclosure, without prior delivery to or approval by the other Party, any information which has previously been included in a public disclosure pursuant to Section 9.2. A Party relying on this Section 9.3 shall bear the burden of establishing that information has previously been included in a public disclosure that has been approved pursuant to Section 9.2 or published or publicly disclosed by the other Party.

9.4 **Use of Proprietary Materials**. From time to time during the Term, either Party (the "**Transferring Party**") may supply the other Party (the "**Recipient Party**") with Proprietary Materials of the Transferring Party for use in connection with this Agreement. Any Proprietary Materials being provided to Recipient Party shall be accompanied by a Materials Transfer Record substantially in the form of Schedule 9.4, which shall be signed by an official representative of both Parties. In connection with the receipt of any Proprietary Materials from the Transferring Party, each Recipient Party hereby agrees that (a) it shall not use such Proprietary Materials for any purpose other than exercising its rights or performing its obligations hereunder; (b) it shall use such Proprietary Materials only in compliance with all Applicable Laws; (c) it shall not transfer any such Proprietary Materials to any Third Party without the prior written consent of the Transferring Party; (d) the Recipient Party shall not acquire any rights of ownership, or title in or to, such Proprietary Materials as a result of such supply by the Transferring Party; and (e) upon the expiration or termination of this Agreement, the Recipient Party shall, if and as instructed by the Transferring Party, either destroy or return any such Proprietary Materials that are not the subject of the grant of a continuing license hereunder; provided, that each Recipient Party may retain the Proprietary Materials of the Transferring Party for the sole purpose of fulfilling regulatory requirements or industry best practices, including archived encapsulated cells from nonclinical GLP and clinical studies. EACH PARTY ACKNOWLEDGES THAT THE PROPRIETARY MATERIALS ARE BEING SUPPLIED WITH NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR THAT THE USE OF THE PROPRIETARY MATERIALS WILL NOT INFRINGE ANY PATENT OR PROPRIETARY RIGHTS OF ANY THIRD PARTY.

10. INTELLECTUAL PROPERTY RIGHTS

10.1 **Metagenomi In-Licensed IP**. If Metagenomi knows or should have knowledge of any Metagenomi In-Licensed IP that Metagenomi has a right to sublicense ("**Sublicenseable Metagenomi In-Licensed IP**"), or Affini-T becomes aware of any Metagenomi In-Licensed IP, then Metagenomi or Affini-T, as applicable, shall promptly notify the other Party in writing of any such Metagenomi In-Licensed IP (i.e., Sublicenseable Metagenomi In-Licensed IP in the case of Metagenomi, and Metagenomi In-Licensed IP in the case of Affini-T), including, in the case of Metagenomi providing a general description of the relevant Sublicenseable Metagenomi In-Licensed IP and any applicable financial terms (if Affini-T initiates this process, then Metagenomi shall promptly respond to Affini-T's initial notice advising whether such Metagenomi In-Licensed IP is Sublicenseable Metagenomi In-Licensed IP and, if it is, with such information). Upon receipt of any such notice from Metagenomi (including a subsequent

notice if Metagenomi is to provide information following an initial notice from Affini-T), Affini-T shall have the right to request, and Metagenomi shall provide, a copy of the license agreement and any amendments thereto with respect to such Sublicenseable Metagenomi In-Licensed IP (the "**Upstream Agreement**") and answer any reasonable questions with respect to such Upstream Agreement and Sublicenseable Metagenomi In-Licensed IP. Following such discussions, Affini-T shall have the right to include such Metagenomi In-Licensed IP as Metagenomi Background IP hereunder upon written notice to Metagenomi subject to Affini-T agreeing to be subject to any pass-through obligations or limitations applicable to Affini-T's exercise of such rights, including responsibility for payment obligations to the extent solely attributable to the rights granted to Affini-T. To the extent Sublicenseable Metagenomi In-Licensed IP is included as Metagenomi Background IP, Metagenomi shall comply with all terms and conditions of, and shall maintain in full force and effect each relevant Upstream Agreement related to such Sublicenseable Metagenomi In-Licensed IP and shall not terminate or amend any such Upstream Agreement in a way that could have an adverse effect on Affini-T's rights without Affini-T's prior written consent, such consent not to be unreasonably withheld or delayed.

10.2 **Ownership of Agreement IP**.

10.2.1 General. As between the Parties, all right, title and interest in any Agreement Know-How and Agreement Patent Rights, shall be owned as follows:

(a) Metagenomi shall solely own all (i) Agreement Know-How that solely (1) relates to the identification, characterization, composition of matter, and manufacture of Metagenomi Reagents, or (2) constitutes an improvement to Metagenomi Background IP (collectively (1) and (2), "**Metagenomi Agreement Know-How**"), and (ii) Patent Rights that Cover Metagenomi Agreement Know-How ("**Metagenomi Agreement Patent Rights**") (collectively (i) and (ii), "**Metagenomi Agreement IP**"); and

(b) Affini-T shall solely own all (i) Agreement Know-How that is not Metagenomi Agreement Know-How ("**Affini-T Agreement Know-How**"), including all Agreement Know-How that constitutes an improvement to Affini-T Background IP, and (ii) Patent Rights that Cover Affini-T Agreement Know-How ("**Affini-T Agreement Patent Rights**") (collectively (i) and (ii), "**Affini-T Agreement IP**").

10.2.2 Notice, Assignments, Assistance.

(a) Each Party shall (i) promptly notify the other Party of any Agreement Know-How made by or on behalf of itself and that is to be owned by the other Party, and (ii) hereby assigns, transfers and conveys to the other Party, or its designee, all of such Party's worldwide right, title and interest in and to any and all Agreement IP that is to be owned by such other Party in accordance with Section 10.2.1, including any and all moral rights and intellectual property rights inherent therein and appurtenant thereto, including all Patent Rights, copyrights, trademarks, Know-How and trade secrets and the rights to apply for the same.

(b) Upon the request and at the reasonable expense of the other Party, each Party shall execute and deliver any and all instruments and documents and take such other acts as may be necessary or desirable to document the assignment and transfer described in Section 10.2.2(a) or to enable such other Party to secure its rights in the applicable Agreement IP, including providing any necessary powers of attorney for such purpose.

10.2.3 CREATE Act. Notwithstanding anything to the contrary in this Article 10, neither Party shall have the right to make an election under the Cooperative Research and Technology Enhancement Act of 2004, 35 U.S.C. 103(c)(2)-(c)(3) (the "**CREATE Act**") when exercising its rights under this Article 10 without the prior written consent of the other Party. With respect to any such permitted election, the Parties shall coordinate their activities with respect to any submissions, filings, or other activities in support thereof. The Parties acknowledge and agree that this Agreement is a "joint research agreement" as defined in the CREATE Act.

11. FILING, PROSECUTION AND MAINTENANCE OF PATENT RIGHTS

11.1 **Patent Prosecution**.

11.1.1 Metagenomi Patent Prosecution Rights. Subject to the last sentence of this Section 11.1.1, Metagenomi shall be solely responsible (but not obligated) for the Patent Prosecution of the Metagenomi Agreement Patent Rights. Affini-T shall cooperate with and reasonably assist Metagenomi in connection with Metagenomi's Patent Prosecution of the Metagenomi Agreement Patent Rights (including review and providing comments for responses to office actions or official actions from worldwide patent offices), including by obtaining assignments to reflect chain of title consistent with the terms of this Agreement. All Patent Costs incurred by Metagenomi in connection with the Patent Prosecution of such Patent Rights shall be the sole responsibility of Metagenomi. If Metagenomi decides to cease prosecution of or to allow to lapse any Metagenomi Agreement Patent Right, it shall inform Affini-T of such decision promptly and, in any event, so as to provide Affini-T a reasonable amount of time to meet any applicable deadline to establish or preserve such Patent Rights. Affini-T shall have the right, but not the obligation, to assume sole responsibility for continuing the prosecution of such Patent Rights and paying any required Patent Costs to maintain such Patent Rights or defend such Patent Rights. If Affini-T notifies Metagenomi that it desires to assume responsibility for any such Metagenomi Agreement Patent Right, then Affini-T will have the right to undertake the Patent Prosecution with respect to such Patent Right in Metagenomi's name and such Patent Right shall cease to be a Metagenomi Patent Right for purposes of determining the Royalty Term.

11.1.2 Metagenomi's Patent Defense Rights. Metagenomi will notify Affini-T within [***] of becoming aware of any declaratory judgment, opposition, or similar action alleging the invalidity, unenforceability or non-infringement of any of the Metagenomi Agreement Patent Rights in the Territory. Metagenomi shall only be primarily responsible (but not obligated) for the Patent Defense of Metagenomi Agreement Patent Rights. At Metagenomi's reasonable expense, Affini-T shall cooperate with and assist Metagenomi in all reasonable respects, in connection with Metagenomi's Patent Defense activities. All Patent Costs incurred by Metagenomi in connection with the Patent Defense of such Patent Rights shall be the sole responsibility of Metagenomi. If Metagenomi decides to cease such Patent Defense with respect to any such Patent Right, it shall inform Affini-T of such decision promptly and, in any event, so as to provide Affini-T a reasonable

amount of time to meet any applicable deadline to defend or preserve such Patent Rights. Affini-T shall have the right, but not the obligation, to assume sole responsibility for continuing such Patent Defense (and thereafter the prosecution of such Patent Rights). If Affini-T notifies Metagenomi that it desires to assume responsibility for any such Patent Defense, then Affini-T will have the right to undertake the Patent Defense with respect to such Patent Right in Metagenomi's name.

11.1.3 Affini-T Prosecution Rights. As between the Parties, Affini-T, at its sole expense, shall be solely responsible for the Patent Prosecution of all Affini-T Patent Rights. Metagenomi shall cooperate with and assist Affini-T in all reasonable respects in connection with Affini-T's Patent Prosecution of such Patent Rights, including by obtaining assignments to reflect chain of title consistent with the terms of this Agreement.

11.1.4 Affini-T's Patent Defense Rights. Affini-T will notify Metagenomi within [***] of becoming aware of any declaratory judgment, opposition, or similar action alleging the invalidity, unenforceability or non-infringement of any Affini-T Patent Rights in the Territory. Affini-T shall be responsible for the Patent Defense of such Affini-T Patent Rights. Metagenomi shall cooperate with and assist Affini-T, at Affini-T's reasonable expense, in all reasonable respects in connection with Affini-T's Patent Defense activities. All Patent Costs incurred by Affini-T in connection with the Patent Defense of such Affini-T Patent Rights shall be, as between the Parties, the sole responsibility of Affini-T.

11.1.5 Information and Cooperation. Metagenomi shall (a) promptly provide Affini-T with copies of all patent applications with respect to Metagenomi Agreement Patent Rights to be filed pursuant to Section 11.1.1 and other material submissions and correspondence with the applicable patent offices, at least [***] (unless the circumstances require otherwise) prior to undertaking any filing for review and comment by Affini-T and (b) provide Affini-T and its patent counsel with an opportunity to consult with Metagenomi and its patent counsel regarding the filing and contents of any such application, amendment, submission or response, during such review period and as may otherwise be agreed by the Parties. The advice and suggestions of Affini-T and its patent counsel shall be taken into consideration in good faith by Metagenomi and its patent counsel in connection with such filing; provided, that, if Affini-T fails to timely provide any comment before the proposed filing or response date, Metagenomi's obligations under this Section 11.1.4 shall be deemed to have been fulfilled.

11.2 **Third Party Infringement**.

11.2.1 If (a) Metagenomi becomes aware of any suspected infringement of any Metagenomi Patent Rights or misappropriation of any Agreement Know-How, in each case with respect to the use by a Third Party of the Metagenomi Reagents to make Gene Edits directed to an Affini-T Clinical Target in the Exclusive Field ("**Infringement**"); or (b) Affini-T becomes aware of an Infringement, then that Party shall promptly notify the other Party of such Infringement of which it is aware (each, an "**Infringement Notice**"). The Parties shall promptly meet to discuss any Infringement and the strategy for patent enforcement with respect to that Infringement; provided, that, at the request of either Party, the Parties shall first execute a common interest agreement before any such meetings or exchange of detailed information.

11.2.2 Metagenomi shall have the first right, but not the obligation, to address any such Infringement in the Territory with respect to the Metagenomi Agreement IP, taking reasonable steps, which may include the institution of legal proceedings or other action, and to compromise or settle such Infringement (each, an "**Infringement Response**"); provided, that: (A) Metagenomi shall keep Affini-T reasonably informed about any such Infringement Response and Affini-T shall provide all reasonable cooperation to Metagenomi in connection with such Infringement Response; (B) Metagenomi shall not take any position with respect to, or compromise or settle, any such Infringement that relates to any Metagenomi Agreement IP in any way that is reasonably likely to adversely affect the scope, validity or enforceability of any Affini-T Agreement IP, the Commercial License or any Licensed Product, without the prior consent of Affini-T, which consent shall not be unreasonably withheld, conditioned or delayed; and (C) if Metagenomi does not intend to or does not take any action to prosecute or defend an Infringement of Metagenomi Agreement IP within [***] after the date of the Infringement Notice, or ceases to diligently pursue an Infringement Response with respect to such an Infringement of Metagenomi Patent Rights, it shall promptly inform Affini-T in such a manner that such Infringement Response will not be prejudiced and Affini-T shall have the right, but not the obligation, to assume sole responsibility to prosecute or defend an Infringement of such Patent Rights and paying all future costs associated with such Infringement Costs. All costs, including attorneys' fees, relating to an Infringement Response from Metagenomi shall be borne solely by Metagenomi.

11.2.3 Each Party shall have the right to participate and be represented by counsel that it selects, in any Infringement Response instituted or continued under Section 11.2.2 by the other Party. If a Party with the right to initiate an Infringement Response under Section 11.2.2 to eliminate an Infringement lacks standing to do so and the other Party has standing to initiate such action, then the Party with the right to initiate an action under Section 11.2.2 may name the other Party as plaintiff in such action or may require the Party with standing to initiate such Infringement Response at the expense of the other Party.

11.2.4 In any Infringement Response instituted under this Section 11.2, the Parties shall cooperate with and reasonably assist each other in all reasonable respects. Upon the reasonable request of the Party instituting that Infringement Response, the other Party shall join such Infringement Response and shall be represented using counsel of its own choice, at the requesting Party's expense.

11.2.5 Any settlements, damages or monetary awards ("**Recovery**") recovered by either Party pursuant to any Infringement Response shall, after reimbursing the Parties for their reasonable out-of-pocket expenses in making such recovery (which amounts shall be allocated pro rata if insufficient to cover the totality of such expenses), be [***]or[***]

11.3 **Defense of Claims**. If any action, suit or proceeding is brought against either Party or any Affiliate of either Party alleging the misappropriation or infringement of the Know-How or Patent Rights of a Third Party by reason of the research, Development, Manufacture or Commercialization of any Licensed Product or component thereof, including receipt of any notices of infringement under 35 U.S.C. § 271(e)(2), 42 U.S.C. § 262(1), or 42 U.S.C. § 262(1)(9)(C), such Party shall notify the other Party within [***] of the earlier of (a) receipt of service of process in such action, suit or proceeding,

or (b) the date such Party becomes aware that such action, suit or proceeding has been instituted. To the extent such action, suit or proceeding does not relate to Metagenomi Reagents, Affini-T shall have the sole right but not the obligation to control and defend such action, suit or proceeding at its sole expense. To the extent such action, suit or proceeding relates to Metagenomi Reagents, the Parties shall meet as soon as possible to discuss the overall strategy for defense of such matter and except as unanimously agreed by the Parties, (i) Affini-T shall have the right but not the obligation to control and defend such action, suit or proceeding at its sole expense; (ii) Metagenomi shall have the right to engage separate counsel at its own expense in any such action, suit or proceeding; and (iii) the Parties shall cooperate with each other in all reasonable respects in any such action, suit or proceeding. Each Party shall promptly furnish the other Party with a copy of each communication relating to the alleged infringement or misappropriation and a Metagenomi Reagent that is received by such Party including all documents filed in any litigation

11.4 **Patent Term Extension**. The Parties shall cooperate with each other in obtaining patent term extensions or supplemental protection certificates or their equivalents in any country in the Territory where applicable to any Patent Right Covering a Licensed Product. Such cooperation shall include diligently and timely conferring and coordinating with respect to such matters to ensure compliance with applicable filing deadlines and agreeing on procedures to be followed by the Parties to ensure such compliance. In the event that elections with respect to obtaining such patent term extension are to be made or the Parties otherwise disagree, Affini-T shall have the right to make the election or decision solely with respect to any Affini-T Patent Rights, and Metagenomi shall retain the right with respect to an election or decision with respect to the Metagenomi Patent Rights; provided that, Metagenomi shall consider any input from Affini-T with respect to the decision to extend Metagenomi Patent Rights in good faith.

12. TERM AND TERMINATION

12.1 **Term**. This Agreement shall commence on the Effective Date and shall continue in full force and effect, unless otherwise terminated pursuant to Section 12.2, until the fifth year anniversary of the Effective Date (the "**Initial Term**"); provided that, if Affini-T exercises an Exclusive Option with respect to any Affini-T Clinical Target during the Initial Term, then the Initial Term shall be extended by five (5) years (the "**Extended Term**") to allow Affini-T to exercise its Option with respect to other Affini-T Clinical Targets. Following the expiration of the Extended Term, if any, this Agreement shall survive, on an Affini-T Clinical Target-by-Affini-T Clinical Target basis, with respect to each Affini-T Clinical Target for which Affini-T has exercised its Option during the Initial Term or Extended Term until the earlier of (i) termination of such Affini-T Clinical Target in its entirety under Section 12.2 and (ii) the last day of the Royalty Term for the last Licensed Product associated with such Affini-T Clinical Target (collectively, the Initial Term, Extended Term (if any) and foregoing survival, the "**Term**"). Upon the expiration of the Royalty Term with respect to a given Licensed Product, country, and Field, the Commercial License granted to Affini-T shall be retained as fully paid-up, irrevocable and perpetual licenses with respect to such Licensed Product, country, and Field.

12.2 **Termination**. This Agreement, a given Affini-T Clinical Target or a Licensed Product may be terminated as follows:

12.2.1 Unilateral Right to Terminate. Affini-T may terminate this Agreement (a) in its entirety, or (b) on (i) a Research Plan-by-Research Plan basis, (ii) an Affini-T Clinical Target-by-Affini-T Clinical Target basis, or (iii) a Licensed Product-by-Licensed Product basis (terminations under this subclause (b), a "**Partial Termination**"), effective at any time by providing not less than sixty (60) days' prior written notice to Metagenomi.

12.2.2 Termination for Breach. If a Party materially breaches this Agreement, then the non-breaching Party may provide the breaching Party with a written notice specifying the nature of the breach, and stating its intention to terminate this Agreement if such breach is not cured; provided, that, this Agreement may only be terminated in its entirety pursuant to this Section 12.2.2 if the material breach materially and adversely impacts this Agreement as a whole, otherwise such termination must be specific to the impacted Research Plan, Affini-T Clinical Target or Licensed Product, as such specifically impacted subject matter(s) are noted in the notice of breach (also, a "**Partial Termination**"). If the material breach is not cured by the allegedly breaching Party within [***] after the receipt of such notice or if such other breach is curable but cannot be cured within the [***]period, the allegedly breaching Party fails to commence actions during such [***]period to cure such breach and thereafter fails to use Commercially Reasonable Efforts to promptly cure such breach, then, in each case, the non-breaching Party shall be entitled, without prejudice to any of its other rights under this Agreement, and in addition to any other remedies available to it by law or in equity, to terminate this Agreement by providing written notice to the other Party. If the allegedly breaching Party in good faith disputes such material breach or the failure to cure or remedy such material breach, such Party shall, within [***] of receipt of written notice from the other Party of termination (a) provide written notice of that dispute putting forward in reasonable detail the rationale for disputing the alleged breach to the notifying Party and (b) initiate a proceeding in accordance with Section 15.1, in which case, such termination shall not be effective until [***] after the proceeding has concluded; provided that the breaching Party shall have [***] after such proceeding to cure the breach and during the pendency of any such proceeding the Parties shall continue performing their respective obligations, and exercising their respective rights, under this Agreement.

12.2.3 Termination for Insolvency. Either Party shall have the right to terminate this Agreement in its entirety upon immediate written notice if the other Party (i) applies for or consents to the appointment of, or the taking of possession by, a receiver, custodian, trustee or liquidator of itself or of all of a substantial part of its property, (ii) makes a general assignment for the benefit of its creditors, (iii) commences a voluntary case under the Bankruptcy Code of any country, (iv) files a petition seeking to take advantage of any Applicable Laws relating to bankruptcy, insolvency, reorganization, winding-up, or composition or readjustment of debts, (v) fails to controvert in a timely and appropriate manner, or acquiesce in writing to, any petition filed against it in any involuntary case under the Bankruptcy Code of any country, (vi) takes any corporate action for the purpose of effecting any of the foregoing, (vii) has a proceeding or case commenced against it in any court of competent jurisdiction, seeking (A) its liquidation, reorganization, dissolution or winding-up, or the composition or readjustment of its debts, (B) the appointment of a trustee, receiver, custodian, liquidator or the like of all or any substantial part of its assets, or (C) similar relief under the Bankruptcy Code of any country, or an order, judgment or decree approving any of the foregoing is entered and continues unstayed for a period of [***], or (viii) has an order for relief against it entered in an involuntary case under the Bankruptcy Code of any country and, in any of (i) through (vii) above, the application, assignment, commencement, filing, or corporate action continues unstayed for, or is not otherwise discharged or withdrawn on or before, a period of [***].

12.3 **Consequences of Termination**.

12.3.1 If this Agreement is terminated in its entirety or subject to a Partial Termination by Affini-T pursuant to Section 12.2.2 or Section 12.2.3 or by Metagenomi pursuant to Section 12.2.3, Metagenomi shall cease performing all applicable Metagenomi Research Activities. Upon Affini-T's written request, Metagenomi will discuss in good faith (a) granting to Affini-T a research use license with respect to any applicable Metagenomi Background IP, and/or (b) a transfer of all complete or incomplete deliverables, reports and data with respect to the terminated Research Plan(s), Affini-T Clinical Target(s) or Licensed Product(s), in each case of (a) and (b), on commercially reasonable terms.

12.3.2 If this Agreement is terminated in its entirety or subject to a Partial Termination by Affini-T pursuant to Section 12.2.1, or by Metagenomi pursuant to Section 12.2.2, Metagenomi shall cease performing all applicable Metagenomi Research Activities. Affini-T shall be responsible for any non-cancellable costs incurred in accordance with an applicable Research Plan (and the subject of which costs cannot be reasonably allocable to other activities being conducted by Metagenomi).

12.3.3 Subject to the foregoing Section 12.3.1 and Section 12.3.2, all rights and licenses granted by one Party to the other under Article 2 will terminate with respect to the terminated subject matter.

12.3.4 Notwithstanding the foregoing, with respect to a Licensed Product on a Licensed Product-by-Licensed Product basis or with respect to all Licensed Products directed to such an Affini-T Clinical Target on an Affini-T Clinical Target-by-Affini-T Clinical Target basis, in the event that Affini-T has the right to terminate this Agreement in accordance with Section 12.2.2 as a result of a breach under Section 2.1.2 (Commercial License), 2.2 (Non-Compete), 4.2.1 (Metagenomi Responsibilities), 4.3 (Compliance), 9.1 (Confidentiality), 13.2.1 (No Claims), 13.2.3 (Ownership), 13.2.4 (Completeness) or 14.2 (Indemnification), and such breach resulted in a material adverse effect on the potential or actual development or commercialization of such Licensed Product(s) or such Affini-T Clinical Target(s), then, in lieu of exercising such termination right, Affini-T shall have the right, by way of written notice to Metagenomi, to continue this Agreement in accordance with its terms subject to [***]

12.4 **Surviving Provisions**. Termination or expiration of this Agreement for any reason shall be without prejudice to: (a) the survival of rights specifically stated in this Agreement to survive, including as set forth in this Section 12.4; (b) the rights and obligations of the Parties provided in Sections 2.1.4 (only for expiration and not termination), 4.4 (for the period set forth therein), 5.5.2 (first two sentences only and only for expiration and not termination), 8.4.4 (for the period set forth therein), 8.4.5, 10.2.2(b), 12.3 (as applicable) and 12.4 and Articles 1, 9 (for the period set forth in 9.1.1), 14 and 15 (excluding Section 15.8) (including all other Sections or Articles referenced in any such Section or Article), all of which shall survive such termination except as provided in this Article 12; and (c) any other rights or remedies provided at law or equity which either Party may otherwise have.

13. REPRESENTATIONS AND WARRANTIES

13.1 **Mutual Representations and Warranties**. Metagenomi and Affini-T each represents and warrants to the other, as of the Effective Date, as follows:

13.1.1 Organization. It is a corporation or company duly organized, validly existing and in good standing under the laws of the jurisdiction of its organization, and has all requisite power and authority, corporate or otherwise, to execute, deliver and perform this Agreement.

13.1.2 Authorization. The execution and delivery of this Agreement and the performance by it of the transactions contemplated hereby have been duly authorized by all necessary corporate action and will not violate (a) such Party's certificate of incorporation or bylaws, (b) any agreement, instrument or contractual obligation to which such Party is bound in any material respect, (c) any requirement of any Applicable Laws, or (d) any order, writ, judgment, injunction, decree, determination or award of any court or Governmental Authority presently in effect applicable to such Party.

13.1.3 Binding Agreement. This Agreement is a legal, valid and binding obligation of such Party, enforceable against it in accordance with its terms and conditions.

13.1.4 No Inconsistent Obligation. It is not under, and will not become subject to, any obligation, contractual or otherwise, to any Person that conflicts with or is inconsistent in any respect with the terms of this Agreement or that would impede the diligent and complete fulfillment of its obligations hereunder.

13.2 **Additional Representations, Warranties and Covenants of Metagenomi**. Metagenomi further represents and warrants to Affini-T, as of the Effective Date, as follows:

13.2.1 No Claims. There are no claims, judgments or settlements against Metagenomi pending, or threatened that invalidate or seek to invalidate Metagenomi's rights in any Metagenomi Background IP. To Metagenomi's knowledge, the exploitation of the Metagenomi Reagents and Metagenomi Background IP and use of Metagenomi Reagents by Affini-T in accordance with the terms of this Agreement, including as used in connection with Affini-T's further research, Development, Manufacturing or Commercialization of Licensed Products, will not infringe on the rights of any Third Party, including any Third Party intellectual property rights.

13.2.2 No Conflict. Metagenomi has not granted any right, license or interest in or to the Metagenomi Patent Rights that is inconsistent with the licenses and rights granted to Affini-T under this Agreement.

13.2.3 Ownership. Metagenomi is the sole and exclusive owner of the Metagenomi Reagents, Metagenomi Background IP, and Metagenomi Patent Rights, and, in each case, has the ability to grant to Affini-T the rights granted to Affini-T under this Agreement, and such ownership is free and clear of all encumbrances, security interests, options and licenses. None of the Metagenomi Reagents or Metagenomi Patent Rights is subject to any existing royalty or other payment obligations to any Third Party under any agreement or understanding entered into by Metagenomi or its Affiliates, and to Metagenomi's knowledge of any obligation to pay any royalties or other amounts to any Third Party by reason of Affini-T's use thereof as contemplated by this Agreement.

13.2.4 Completeness. The intellectual property licensed to Affini-T hereunder represents all of the intellectual property rights that are being used by Metagenomi or its Affiliates, or that are necessary or useful, for the exploitation of the Metagenomi Reagents internally referred to by Metagenomi, as of the Effective Date, as [***]. The Patent Rights set forth in Schedule 13.2.4 represents all patents that, as of the Effective Date, Metagenomi or its Affiliates Control, and that (a) Cover the Metagenomi Reagents internally referred to by Metagenomi, as of the Effective Date, as [***], Gene Edit using such Metagenomi Reagents or, to Metagenomi's knowledge, Licensed Products made using such Metagenomi Reagents, or (b) are otherwise necessary or useful to make, use, sell, import or practice such Metagenomi Reagent, Gene Edit using such Metagenomi Reagents, or, to Metagenomi's knowledge, Licensed Products incorporating such Metagenomi Reagents, such schedule shall be updated from time to time by Metagenomi on and after the Effective Date. For each Metagenomi Reagent (other than the Metagenomi Reagents internally referred to by Metagenomi, as of the Effective Date, as [***]), simultaneously with providing the Data Package in connection with such Research Plan, Metagenomi shall provide to Affini-T a written statement that represents and warrants that, except as disclosed in such written statement, the representations and warranties of Metagenomi set forth in this Section 13.2.4 are true and correct with respect to such Metagenomi Reagent as of the date of such written statement.

13.2.5 No Interference. The Metagenomi Patent Rights are not the subject of any interference proceeding and there is no pending or threatened action, suit, proceeding or claim by a Third Party challenging Metagenomi's ownership rights in, or the validity or scope of, such Patent Rights.

13.2.6 No Litigation. There is no claim, action, suit, proceeding, complaint or investigation pending before any court or administrative office or agency or, except with respect to disclosures provided in a letter from Simren Delaney at Metagenomi to Head of Legal at Affini-T of even date herewith, to Metagenomi's knowledge, currently threatened against, Metagenomi or any of its Affiliates, with respect to any of the Metagenomi Background IP.

13.2.7 No Third Party Infringement. Metagenomi has not initiated or been involved in any proceedings or claims in which it alleges that any Third Party is or was infringing or misappropriating any Metagenomi Background IP nor have any such proceedings been threatened by Metagenomi. To Metagenomi's knowledge, no Person is infringing or threatening to infringe or misappropriating or threatening to misappropriate any of the Metagenomi Background IP.

13.2.8 Assignment by Employees, Agents and Consultants. All employees and agents of, and consultants to, Metagenomi are obligated to assign to Metagenomi their rights in and to any inventions arising out of their work at Metagenomi either pursuant to written agreement or by operation of law.

13.2.9 No Government Funding. The inventions and Know-How included within Metagenomi Background IP (a) were not conceived, discovered, developed, or otherwise made in connection with any research activities funded, in whole or in part, by the federal government of the U.S. or any agency thereof, (b) are not a "subject invention" as that term is described in 35 U.S.C. Section 201(f), and (c) are not otherwise subject to the provisions of the Bayh-Dole Act.

13.2.10 Absence of Debarment. None of Metagenomi, its officers, employees, agents, consultants or any other person Metagenomi intends to use in the performance of the Metagenomi Research Activities has been or is (a) debarred, convicted, or is subject to a pending debarment or conviction, pursuant to section 306 of the United States Food Drug and Cosmetic Act, 21 U.S.C. § 335a, (b) listed by any government or regulatory agencies as ineligible to participate in any government healthcare programs or government procurement or non-procurement programs (as that term is defined in 42 U.S.C. 1320a-7b(f)), or excluded, debarred, suspended or otherwise made ineligible to participate in any such program, or (c) convicted of a criminal offense related to the provision of healthcare items or services, or is subject to any such pending action. Metagenomi agrees to inform Affini-T in writing promptly if Metagenomi or any person who is performing Metagenomi Research Activities is subject to the foregoing, or if any action, suit, claim, investigation, or proceeding relating to the foregoing is pending, or to the best of Metagenomi's knowledge, is threatened.

13.2.11 Disclosure. Metagenomi has made available to Affini-T all toxicology studies, clinical data, process and analytical development information, material filings and material correspondence with Regulatory Authorities, and all other material information in its possession or control relating to the Metagenomi Reagents internally referred to by Metagenomi, as of the Effective Date, as [***], and, to Metagenomi's knowledge, all such information is complete and accurate in all material respects. For each Metagenomi Reagent (other than the Metagenomi Reagents internally referred to by Metagenomi, as of the Effective Date, as [***]), simultaneously with providing the Data Package in connection with such Research Plan, Metagenomi shall provide to Affini-T a written statement that represents and warrants that, except as disclosed in such written statement, the representations and warranties of Metagenomi set forth in this Section 13.2.11 are true and correct with respect to such Metagenomi Reagent as of the date of such written statement.

13.2.12 No Human Materials. If pursuant to this Agreement Metagenomi provides to Affini-T any biological materials that consists of human tissues, cells or blood products or was directly obtained from human tissues, cells or blood products, then Metagenomi shall ensure that it has obtained and maintained the informed consent required under state and federal law from the donor of the tissue for the research and development, information disclosure, handling, storage and any other use associated with the human tissue, cells or blood products to be conducted under this Agreement.

13.3 **Warranty Disclaimer**. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT, NEITHER PARTY MAKES ANY WARRANTY WITH RESPECT TO ANY KNOW-HOW, RIGHTS OR OTHER SUBJECT MATTER OF THIS AGREEMENT AND EACH PARTY HEREBY DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

13.4 **No Warranty of Success**. Nothing contained in this Agreement shall be construed as a warranty, either express or implied, on the part of either Party that (a) the Metagenomi Research Activities, or development of Metagenomi Reagents on behalf of Affini-T will be successful, (b) the Development or Commercialization of any Licensed Product will be successful, or (c) any Licensed Product will be commercially exploitable in any respect.

14. INDEMNIFICATION

14.1 **Indemnification of Metagenomi by Affini-T**. Affini-T shall indemnify, defend and hold harmless Metagenomi, its Affiliates, their respective employees, directors, agents, officers and consultants (collectively, the "**Metagenomi Indemnitees**"), against all liabilities, damages, losses and expenses (including reasonable attorneys' fees and expenses of litigation) (collectively, "**Losses**") incurred by or imposed upon the Metagenomi Indemnitees, or any of them, as a direct result of claims, suits, actions, demands or judgments of Third Parties, including personal injury and Licensed Product liability claims (collectively, "**Metagenomi Indemnity Claims**"), arising out of (a) any breach of this Agreement (including any representation or warranty hereunder) by Affini-T or any Affini-T Indemnitee or Sublicensee, (b) the gross negligence or willful misconduct of Affini-T or any Affini-T Indemnitee or Sublicensee, or (c) the Development or Commercialization of a Licensed Product by Affini-T or any Affini-T Indemnitee or Sublicensee (expressly excluding any such activities conducted by or on behalf of Metagenomi or liabilities for which Metagenomi is liable as the manufacturer under the Development Supply Agreement or Commercial Supply Agreement); provided, that (i) any Affini-T Indemnity Claims or Losses for which Metagenomi has an obligation to indemnify Affini-T Indemnitees pursuant to Section 14.2 shall be excluded and with respect to which claim or Losses each Party shall indemnify the other to the extent of their respective liability for such Losses, (ii) Affini-T has no obligation to indemnify with respect to Losses arising out of the infringement or misappropriation of Third Party's intellectual property rights as a result of the exploitation of Metagenomi IP or the Metagenomi Reagents, in each case provided such exploitation is within the scope of the licenses granted to Affini-T hereunder, and (iii) Affini-T's indemnification obligations shall be limited to the extent that it is increased by Metagenomi's or any Metagenomi Indemnitee's negligence.

14.2 **Indemnification of Affini-T by Metagenomi**. Metagenomi shall indemnify, defend and hold harmless Affini-T, its Affiliates, their respective employees, directors, agents, officers and consultants (collectively, the "**Affini-T Indemnitees**"), against all Losses incurred by or imposed upon the Affini-T Indemnitees, or any of them, as a direct result of claims, suits, actions, demands or judgments of Third Parties, including personal injury and Licensed Product liability claims (collectively, "**Affini-T Indemnity Claims**") arising out of (a) any breach of this Agreement (including any representation or warranty hereunder) by Metagenomi or any Metagenomi Indemnitee, or (b) the gross negligence or willful misconduct of Metagenomi or any Metagenomi Indemnitee; provided, that (i) any Metagenomi Indemnity Claim or Losses for which Affini-T has an obligation to indemnify any Metagenomi Indemnitees pursuant to Section 14.1 shall be excluded and with respect to which claims or Losses each Party shall indemnify the other to the extent of their respective liability for such Losses, and (ii) Metagenomi's indemnification obligations shall be limited to the extent that it is increased by Affini-T or any Affini-T Indemnitees negligence.

14.3 **Conditions to Indemnification**. A Person seeking recovery under this Article 14 (the "**Indemnified Party**") in respect of a Claim shall give prompt notice of such Claim to the Party from whom indemnification is sought (the "**Indemnifying Party**"); provided, that the Indemnifying Party is not contesting its obligation under this Article 14, shall permit the Indemnifying Party to control any litigation relating to such Claim (including selecting counsel) and the disposition of such Claim; and further provided, that the Indemnifying Party shall (a) act reasonably and in good faith with respect to all matters relating to the settlement or disposition of such Claim as the settlement or disposition relates to such Indemnified Party and (b) not settle or otherwise resolve such claim without the prior written consent of such Indemnified Party (which consent shall not be unreasonably withheld, conditioned or delayed) unless such settlement fully releases the Indemnified Party without any liability, loss, cost or obligation incurred by the Indemnified Party (in which case prior consent shall not be required). Each Indemnified Party shall cooperate with the Indemnifying Party in its defense of any such Claim in all reasonable respects and shall have the right to be present in person or through counsel at all legal proceedings with respect to such Claim (with any such counsel being at its own sole cost and expense). If the Indemnifying Party does not assume and conduct the defense of the Claim as provided above, (i) the Indemnified Party may defend against, consent to the entry of any judgment, or enter into any settlement with respect to such Claim in any manner the Indemnified Party may deem reasonably appropriate (and the Indemnified Party need not consult with, or obtain any consent from, the Indemnifying Party in connection therewith), and (ii) the Indemnifying Party shall remain responsible to indemnify the Indemnified Party as provided in this Article 14.

14.4 **Limited Liability**. EXCEPT IN CONNECTION WITH A PARTY'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY OR ANY OF ITS AFFILIATES FOR ANY SPECIAL, PUNITIVE, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS OR LOST REVENUES, REGARDLESS OF ANY NOTICE OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, NOTHING IN THIS SECTION 14.4 IS INTENDED TO OR SHALL LIMIT OR RESTRICT THE INDEMNIFICATION RIGHTS OR OBLIGATIONS OF ANY PARTY UNDER SECTION 14.1 OR 14.2.

15. MISCELLANEOUS

15.1 **Governing Law** .

15.1.1 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of New York (U.S.A.), without regard to the application of principles of conflicts of law.

15.1.2 Jurisdiction and Venue. Subject to Section 15.1.3 and 15.1.4, any legal suit, action, or proceeding arising under, out of or in connection with this Agreement (including any subsequent amendment) or the matters contemplated hereunder, including any dispute, controversy or claim with respect to the validity, enforceability, construction, performance or breach hereof, shall be instituted exclusively in the United States District Court for the Southern District of New York or the courts of the State of New York located in the city of New York and County of New York, and each Party irrevocably submits to the exclusive jurisdiction of such courts in any such suit, action, or proceeding and waives any objection based on improper venue or forum *non conveniens*. Service of process, summons, notice, or other document by mail to such Party's address set forth in Section 15.2 shall be effective service of process for any suit, action, or other proceeding brought in connection with this Agreement.

15.1.3 Equitable Relief. Notwithstanding anything to the contrary, each of the Parties hereby acknowledges that a breach or threatened breach of their respective obligations under this Agreement may cause irreparable harm and that the remedy or remedies at law for any such breach may be inadequate. Each of the Parties hereby agrees that, in the event of any such breach or threatened breach, in addition to all other available remedies hereunder, the non-breaching Party shall have the right, through any court of competent jurisdiction, to seek equitable relief to enforce the provisions of this Agreement, and each Party irrevocably submits to the exclusive jurisdiction of such courts in any such suit, action, or proceeding and waives any objection based on improper venue or forum non conveniens.

15.1.4 Agreement Dispute. It is the desire of the Parties to establish procedures to facilitate the resolution of any dispute, controversy, or claim between the Parties that may arise from time to time pursuant to, arising out of or in connection with this Agreement (excluding such matters as are the subject of the JSC's responsibilities under Article 3), including any Party's rights or obligations hereunder or any questions regarding the formation, existence, validity, enforceability, performance, interpretation, tort, breach or termination hereof (each, an "**Agreement Dispute**"), in an expedient manner by mutual cooperation and without resorting to litigation. To accomplish this objective, the Parties shall use reasonable efforts in good faith to resolve any Agreement Disputes. If, despite such reasonable efforts, agreement on a particular Agreement Dispute cannot be reached by the Parties within [***] after the Parties first consider such Agreement Dispute, the Parties shall refer such Agreement Dispute to the Executive Officers of the Parties who shall promptly initiate discussions in good faith to resolve such Agreement Dispute, and if not resolved by the Executive Officers within [***] from the date the Agreement Dispute is first referred to the Executive Officers, then each Party is free to pursue any remedy at law or in equity available to such Party.

15.2 **Notices**. All notices and communications shall be in writing and delivered personally or by internationally-recognized overnight express courier providing evidence of delivery or mailed via certified mail, return receipt requested, addressed as follows below, or by email or facsimile confirmed thereafter by any of the foregoing, or to such other address as may be designated from time to time by written notice given in accordance with this Section 15.2.

If to Affini-T:	Affini-T Therapeutics, Inc. 87 Greendale Ave. Needham, MA 02494 Attention: CEO With an electronic copy by email to:
With a copy to (that shall not constitute notice):	Affini-T Therapeutics, Inc. 2940 11th Ave. Los Angeles, CA 90018 Attention: Head of Legal With an electronic copy by email to:
With a copy to (that shall not constitute notice):	Morgan Lewis Bockius LLP 110 North Wacker Drive Chicago, IL 60606-1511 Attention: Benjamin H. Pensak With an electronic copy by email to:
If to Metagenomi:	Metagenomi, Inc. 1545 Park Avenue Emeryville CA 94608 Attention: CEO With an electronic copy by email to:
With a copy to (that shall not constitute notice):	Metagenomi, Inc. 1545 Park Avenue Emeryville CA 94608 Attention: VP of Legal, Chief of Staff With an electronic copy by email to:
With a copy to (that shall not constitute notice):	Fenwick & West LLP 555 California Street, 12th Floor San Francisco, CA 94104 Attention: Jake Handy With an electronic copy by email to:

Except as otherwise expressly provided in this Agreement or mutually agreed by the Parties in writing, any notice, communication or document (excluding payment) required to be given or made shall be deemed given or made and effective upon actual receipt or, if earlier, (a) [***]after deposit with an internationally-recognized overnight express courier with charges prepaid, or (b) [***]after mailed by certified, registered or regular mail, postage prepaid, in each case addressed to a Party at its address stated above or to such other address as such Party may designate by written notice given in accordance with this Section 15.2.

15.3 **Binding Effect**. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective legal representatives, successors and permitted assigns.

15.4 **Headings**. Article, section and subsection headings are inserted for convenience of reference only and do not form a part of this Agreement.

15.5 **Counterparts**. This Agreement may be executed simultaneously in two or more counterparts, each of which shall be deemed an original and both of which, together, shall constitute a single agreement. Each Party may execute this Agreement by facsimile transmission or in Portable Document Format ("**PDF**") sent by electronic mail. In addition, facsimile or PDF signatures of authorized signatories of any Party will be deemed to be original signatures and will be valid and binding, and delivery of a facsimile or PDF signature by any Party will constitute due execution and delivery of this Agreement.

15.6 **Amendment; Waiver**. This Agreement may be amended, modified, superseded or canceled, and any of the terms of this Agreement may be waived, only by a written instrument executed by each Party or, in the case of waiver, by the Party or Parties waiving compliance. The delay or failure of either Party at any time or times to require performance or to exercise any right arising out of any provisions shall in no manner affect the rights at a later time to enforce the same. Any waiver by a Party of a particular provision or right shall be in writing, shall be as to a particular matter and, if applicable, for a particular period of time and shall be signed by such Party. No single or partial exercise of any right, power or privilege will preclude any other or further exercise of such right, power or privilege or the exercise of any other right, power or privilege. No waiver by either Party of any condition or of the breach of any term contained in this Agreement, whether by conduct, or otherwise, in any one or more instances, shall be deemed to be, or considered as, a further or continuing waiver of any such condition or of the breach of such term or any other term of this Agreement. Except as expressly set forth in this Agreement, all rights and remedies available to a Party, whether under this Agreement or afforded by Applicable Law or otherwise, will be cumulative and not in the alternative to any other rights or remedies that may be available to such Party.

15.7 **Purposes and Scope**. The Parties hereto understand and agree that the relationship between the Parties described in this Agreement is limited to the activities, rights and obligations as set forth in this Agreement. Nothing in this Agreement shall be construed (a) to create or imply a general partnership between the Parties, (b) to make either Party the agent of the other for any purpose, (c) to alter, amend, supersede or vitiate any other arrangements between the Parties with respect to any subject matter not covered hereunder, (d) to give either Party the right to bind the other, (e) to create any duties or obligations between the Parties except as set forth herein, or (f) to grant any direct or implied licenses or any other rights other than as set forth herein.

15.8 **Assignment and Successors; Change of Control**.

15.8.1 Generally. Neither this Agreement nor any obligation of a Party hereunder may be assigned by either Party without the written consent of the other Party, which consent shall not be unreasonably withheld, conditioned or delayed, except that each Party may assign this Agreement and the rights, obligations and interests of such Party without such consent (a) in whole or in part, to any of its Affiliates, or (b) in whole, but not in part, in connection with a Change of Control of such Party (whether this Agreement is actually assigned or is assumed by the acquiring party by operation of law (e.g., in the context of a reverse triangular merger). Subject to the terms and conditions hereof, no right of a Party shall be diminished and no obligation of a Party increased as a result of an assignment by the other Party hereunder, including as a result of a Change of Control of the other Party. This Agreement is intended for the benefit of the Parties and their respective successors and permitted assigns, and is not for the benefit of, nor may any provision hereof be enforced by, any other Person, other than the Parties and their respective successors and permitted assigns.

15.8.2 Metagenomi Change of Control. In the event of a Change of Control of Metagenomi prior to delivery of all Data Packages for each Research Plan, Metagenomi shall provide notice to Affini-T of such Change of Control within [***] after the date upon which the Change of Control closes or otherwise becomes public, and, if the merger partner for such Change of Control has a Competing Business, then following such Change of Control, Affini-T shall have the right to limit the information or reports otherwise required to be provided to Metagenomi or the JSC hereunder to only that which is essential to ensure Affini-T's compliance with its obligations hereunder and Affini-T shall have the right to refrain from including in such information or reports commercially sensitive information of Affini-T (as Affini-T may determine at its sole discretion).

15.9 **Force Majeure**. Neither Affini-T nor Metagenomi shall be liable for failure of or delay in performing obligations set forth in this Agreement, and neither shall be deemed in breach of its obligations, if such failure or delay is due to a Force Majeure. In the event of such Force Majeure, the Party affected shall use Commercially Reasonable Efforts to cure or overcome the same and resume performance of its obligations hereunder. Notice of a Party's failure or delay in performance due to Force Majeure must be given to the other Party within [***] after its occurrence. All delivery dates under this Agreement that have been affected by Force Majeure shall be tolled for the duration of such Force Majeure. If a Force Majeure persists for more than [***], then the Parties will discuss in good faith the modification of the Parties' obligations under this Agreement in order to mitigate the delays caused by such Force Majeure.

15.10 **Interpretation**. The Parties hereto acknowledge and agree that: (a) each Party and its counsel reviewed and negotiated the terms and provisions of this Agreement and have contributed to its revision; (b) the rules of construction to the effect that any ambiguities are resolved against the drafting Party shall not be employed in the interpretation of this Agreement; and (c) the terms and provisions of this Agreement shall be construed fairly as to each Party and not in a favor of or against either Party, regardless of which Party was generally responsible for the preparation of this Agreement. In addition, unless a context otherwise requires, wherever used, the singular shall include the plural, the plural the singular, the use of any gender shall be applicable to all genders, the word "or" is used in the inclusive sense (and/or) and the word "including" is used without limitation and means "including without limitation". Unless otherwise specified, references in this Agreement to any Article shall include all Sections, subsections and paragraphs in such Article, references to any Section shall include all subsections and paragraphs in such Section, and references in this Agreement to any subsection shall include all paragraphs in such subsection. The words "herein," "hereof" and "hereunder" and other words of similar import refer to this Agreement as a whole and not to any particular Section or other subdivision. The phrase "non-refundable, non-creditable" is not intended to limit either Party's rights to pursue or obtain damages arising from a breach of this Agreement. All references to days in this Agreement shall mean calendar days, unless otherwise specified. Unless the context requires otherwise, (i) any definition of or reference to any agreement, instrument or other document herein will be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein or therein), (ii) any reference to any Applicable Laws herein will be construed as referring to such Applicable Laws as from time to time enacted, repealed or amended, (iii) any reference herein to any person will be construed to include the Person's successors and permitted assigns, (iv) any reference herein to the words "mutually agree" or "mutual written agreement" will not impose any obligation on either Party to agree to any terms relating thereto or to engage in discussions relating to such terms except as such Party may determine in such Party's sole discretion, (v) all references herein to Sections or Schedules will be construed to refer to Sections and Schedules to this Agreement, (vi) except as otherwise expressly provided herein all references to "$" or "dollars" refer to the lawful money of the U.S., and (vii) the words "copy" and "copies" and words of similar import when used in this Agreement include, to the extent available, electronic copies, files or databases containing the information, files, items, documents or materials to which such words apply. This Agreement has been prepared in the English language and the English language shall control its interpretation. In addition, all notices required or permitted to be given hereunder, and all written, electronic, oral or other communications between the Parties regarding this Agreement shall be in the English language.

15.11 **Entire Agreement; Severability**. This Agreement, the Existing RSA, the A&R Side Letter, MFN Waiver and the Initial RSA and Milestone RSA executed in accordance with Section 8.1 set forth the entire agreement with respect to the subject matter hereof and thereof and supersede all other agreements and understandings between the Parties with respect to such subject matter. There are no covenants, promises, agreements, warranties, representations, conditions or understandings, either oral or written, between the Parties with respect to the subject matter of this Agreement other than as are set forth in this Agreement and any other documents delivered pursuant hereto or thereto. If any provision of this Agreement is or becomes invalid or is ruled invalid by any court of competent jurisdiction or is deemed unenforceable, it is the intention of the Parties that the remainder of the Agreement shall not be affected.

15.12 **Further Assurances**. Each of Metagenomi and Affini-T, upon the request of the other Party and without further consideration, will do, execute, acknowledge, and deliver or cause to be done, executed, acknowledged or delivered all such further acts, deeds, documents, assignments, transfers, conveyances, powers of attorney, instruments and assurances as may be reasonably necessary to effect complete consummation of the transactions contemplated by this Agreement, and to do all such other acts, as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement. The Parties agree to execute and deliver such other documents, certificates, agreements and other writings and to take such other actions as may be reasonably necessary in order to consummate or implement expeditiously the transactions contemplated by this Agreement.

15.13 **Expenses**. Each of the Parties will bear its own direct and indirect expenses incurred in connection with the negotiation and preparation of this Agreement and, except as set forth in this Agreement, the performance of the obligations contemplated hereby and thereby.

15.14 **Intellectual Property**. The Parties acknowledge and agree that the licenses granted by the Parties and all other rights granted under or pursuant to this Agreement are and shall otherwise be deemed to be, for purposes of Section 365(n) of the Bankruptcy Code (or analogous provisions of the bankruptcy laws of any Governmental Authority), licenses of rights to "intellectual property" as defined under Section 101(35A) of the Bankruptcy Code (or analogous foreign provisions), and that this Agreement is an executory contract governed by Section 365(n) of the Bankruptcy Code (or analogous foreign provisions) in the event that a bankruptcy proceeding is commenced involving either Party. Affini-T, as the licensee of such rights under Article 2, shall retain and may fully exercise all of its rights and elections under the Bankruptcy Code. The foregoing provisions of this Section 15.14 are without prejudice to any rights the Parties may have arising under the Bankruptcy Code or other Applicable Laws.

15.15 **Performance by Affiliates**. Subject to Section 2.2.3 and Section 4.2.1(e), as applicable, either Party may discharge any obligation and exercise any right hereunder through any of its Affiliates. Each Party shall remain jointly and severally liable to the other Party for any performance or non-performance of any such Affiliate, and each Party hereby expressly waives any requirement that the other Party exhaust all right, power or remedy, or proceed against any such Affiliate, prior to proceeding directly against such Party.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed by their duly authorized representatives.

AFFINI-T THERAPEUTICS, INC.

By: /s/ Jak Knowles
Name: Jack Knowles
Title: CFO
Date: June 14, 2022

METAGENOMI, INC.

By: /s/ Brian C. Thomas
Name: Brian C. Thomas
Title: CEO
Date: June 14, 2022

[SIGNATURE PAGE TO DEVELOPMENT OPTION AND LICENSE AGREEMENT]