Risk Factors Comparison 2025-02-25 to 2024-02-27 Form: 10-K

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~~An investment in our common stock involves risks.~~ You should **carefully** consider ~~carefully~~ the ~~following~~ risks ~~, which are discussed more fully in " Item 1. A. Risk Factors ",~~ and **uncertainties described below together with** all of the other information contained in this Annual Report on Form 10- K **,** ~~before investing in our common stock. These risks include~~ **including** ~~, but are not limited to, the following: • Base editing is a novel technology that is not yet clinically validated for human therapeutic use. The approaches we are taking to discover and develop novel therapeutics are unproven and may never lead to marketable products. • We have incurred significant losses since inception. We expect to incur losses for the foreseeable future and may never achieve or maintain profitability. • We will need substantial additional funding. If we are unable to raise capital when needed, we would be forced to delay, reduce, or eliminate our research and product development programs or future commercialization efforts. • 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 may not be successful in our efforts to identify and develop potential product candidates. If these efforts are unsuccessful, we may never become a commercial stage company or generate any revenues. • We are early in our development efforts. Our product candidates are still in preclinical development or early clinical development and it will be many years before we or our collaborators commercialize a product candidate, if ever. If we are unable to advance our product candidates to and through clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed. • If we experience delays or difficulties in the enrollment or treatment of patients in clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented. • If clinical trials of any product candidates we 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. • If any of the product candidates we may develop or the delivery modalities we rely on cause serious adverse events, undesirable side effects or unexpected characteristics, such events, side effects or characteristics could delay or prevent regulatory approval of the product candidates, limit the commercial potential, or result in significant negative consequences following any potential marketing approval. • 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~~ - **our consolidated** ~~, which may harm our~~ financial ~~condition~~ **statements** and **related notes appearing** ~~our ability to successfully market or commercialize any product candidates we may develop. • We plan to conduct clinical trials~~ at ~~sites outside the United States. The U. S. Food and Drug Administration, or the FDA, may not accept data from trials conducted in such locations, and the conduct of trials outside the United States could subject us to additional delays and expense. • We have not tested many of our proposed delivery modalities and product candidates in clinical trials and any favorable preclinical results are not predictive of results that may be observed in clinical trials. • Adverse public perception of genetic medicines, and gene editing and base editing in particular, may negatively impact regulatory approval of, and / or demand for, our potential products. • The gene editing field is relatively new and is evolving rapidly. We are focusing our research and development efforts on gene editing using base editing technology, but other gene editing technologies may be discovered that provide significant advantages over base editing, which could materially harm our business. • Regulatory requirements governing genetic medicines, and in particular any novel genetic medicines we may develop, have changed frequently and may continue to change in the future. • Genetic medicines 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 or commercialization programs, limit the supply of our product candidates we may develop, or otherwise harm our business. • We contract with third parties for the manufacture and supply of materials for our research programs, preclinical studies and clinical trial and expect to continue to do so for at least a portion of our future research programs, preclinical studies, and clinical trials and for commercialization of any product candidates that we may develop. This reliance on third parties increases the risk that we will not have sufficient quantities of such materials, product candidates, or any medicines that we may develop and commercialize, or that such supply will not be available to us at an acceptable cost, which could delay, prevent, or impair our development or commercialization efforts. • Because we are developing product candidates in the field of genetics medicines, a field that includes gene therapy and gene editing, 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 we are unable to obtain and maintain patent protection for any product candidates we develop and for our technology, or if the scope of the patent protection obtained is not sufficiently broad, or if we or our licensors are unable to successfully defend our or our licensors' patents against third- party challenges or enforce our or our licensors' patents against third parties our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize any product candidates we may develop, and our technology may be adversely affected. • Our rights to develop and commercialize technology and product candidates are subject, in part, to the terms and conditions of licenses granted to us by others. • Third parties have asserted and may in the future assert that we, our employees, consultants, or advisors have wrongfully used or disclosed confidential information or misappropriated trade secrets. • The intellectual property landscape around gene editing technology, including base editing and delivery technology, is highly dynamic, and third parties may initiate legal proceedings alleging that we are infringing, misappropriating, or otherwise~~

violating their intellectual property rights, the outcome of which would be uncertain and may prevent, delay or otherwise interfere with our product discovery and development efforts. • Our activities rely on information technology in our own systems and those of our business partners. These systems are subject to a wide and growing variety of cybersecurity risks that may adversely impact our business activities or our ability to engage in various transactions to support our business activities. • Our clinical research activities depend on the use and disclosure of personal data related to individuals participating in our clinical trials. The rules addressing this data are changing across the world, and these rules may adversely impact our ability to identify individuals for clinical trials or conduct our trials. • Our owned and in- licensed patents and other intellectual property may be subject to priority disputes or inventorship disputes or we may be subject to claims that we have infringed, misappropriated or otherwise violated the intellectual property of a third party and similar proceedings. If we or our licensors are unsuccessful in any of these proceedings, we may be required to obtain licenses from third parties, which may not be available on commercially reasonable terms or at all, or to cease the development, manufacture, and commercialization of one or more of the product candidates we may develop, which could have a material adverse impact on our business. • Unstable market and economic conditions may have serious adverse consequences on our business, financial condition and stock price. PART I Item 1. Business. Overview We are a biotechnology company committed to establishing the leading, fully integrated platform for precision genetic medicines. Our vision is to provide life- long cures to patients suffering from serious diseases. To achieve this vision, we have assembled a platform that includes a suite of gene editing and delivery technologies as well as internal manufacturing capabilities. Our suite of gene editing technologies is anchored by our proprietary base editing technology, which potentially enables a differentiated class of precision genetic medicines that target a single base in the genome without making a double- stranded break in the DNA. This approach uses a chemical reaction designed to create precise, predictable and efficient genetic outcomes at the targeted sequence. Our proprietary base editors have two principal components: (i) a clustered regularly interspaced short palindromic repeats, or CRISPR, protein, bound to a guide RNA, that leverages the established DNA- targeting ability of CRISPR, but is modified to not cause a double- stranded break, and (ii) a base editing enzyme, such as a deaminase, which carries out the desired chemical modification of the target DNA base. We believe this design contributes to a more precise and efficient edit compared to traditional gene editing methods, with the potential to dramatically increase the impact of gene editing. We are also pursuing a suite of delivery modalities, including both ex vivo and in vivo approaches, depending on tissue type. The elegance of the base editing approach, combined with a tissue specific delivery modality, provides the basis for a targeted, efficient, precise, and highly versatile gene editing system that is designed to be capable of gene correction, gene silencing, gene activation, gene modification, and / or multiplex editing of several genes simultaneously. Our goal is to advance a broad, diversified portfolio of base editing programs against distinct, genetically validated editing targets, as well as an innovative, platform business model that will expand the reach of our programs to more patients. Overall, we are seeking to build the leading integrated platform for precision genetic medicine, which may have broad therapeutic applicability and the potential to transform the field of precision genetic medicines. We are currently prioritizing the lead programs in our hematology and genetic disease portfolios, each of which have the potential to provide differentiated therapies for significant patient populations with high unmet medical need: • BEAM- 101 is a patient- specific, autologous hematopoietic stem cell, or HSC, investigational therapy designed to offer a potentially best- in- class profile, incorporating base edits that are intended to alleviate the effects of sickle cell disease or beta- thalassemia by increasing fetal hemoglobin, which is expected to increase functional hemoglobin production and, in the case of sickle cell disease, inhibit hemoglobin S polymerization. In January 2024, we announced that the first patient in our Phase 1 / 2 BEACON trial, has been dosed and successfully achieved engraftment. We expect to dose the remaining two patients in the sentinel cohort and initiate dosing in patients in the expansion cohort of the BEACON trial in the first half of 2024, and we plan to report initial data from multiple patients from the trial in the second half of 2024. • BEAM- 302 is a liver- targeting lipid nanoparticle, or LNP, formulation of base editing reagents designed to offer a one- time treatment to correct the E342K point mutation (PiZZ genotype), which is most commonly responsible for severe alpha- 1 antitrypsin deficiency, or AATD. AATD is an inherited genetic disorder that can cause early onset emphysema and liver disease. In January 2024, we announced that we have submitted a clinical trial application, or CTA, for BEAM- 302, and, assuming CTA acceptance, we plan to initiate a clinical trial to assess the safety and efficacy of BEAM- 302 at trial sites located outside of the U. S. in the first half of 2024. We are also continuing to advance our other hematology, genetic diseases and immunology / oncology programs: • Engineered Stem Cell Antibody Paired Evasion, or ESCAPE, is a potentially non-genotoxic approach to HSC transplantation, or HSCT, which combines antibody- based conditioning with multiplex gene edited HSCs. We are leveraging our base- editing capabilities to develop our ESCAPE program and anticipate initiating Phase 1-enabling preclinical studies to evaluate the ESCAPE program in sickle cell disease in 2024. • BEAM- 301 is a liver- targeting LNP formulation of base editing reagents designed to correct the R83C mutation, the most prevalent disease- causing mutation for, and the mutation which results in the most severe form of, glycogen storage disease type 1a, or GSD1a. In the first half of 2024, we plan to submit an investigational new drug, or IND, application, to evaluate BEAM- 301 for the treatment of GSD1a at a select number of trial sites in the United States. • BEAM- 201 is an anti- CD7 CAR- T product candidate that is multiplex edited with a goal of achieving resistance to fratricide and immunosuppression. We have initiated a Phase 1 / 2 clinical trial to evaluate the safety and efficacy of BEAM- 201 for the treatment of relapsed / refractory T- cell acute lymphoblastic leukemia / T- cell lymphoblastic lymphoma, or T- ALL / T- LL. We are continuing enrollment in the Phase 1 / 2 clinical trial and expect to report an initial clinical dataset for BEAM- 201 in the second half of 2024. Limitations of nuclease editing Gene editing works by disrupting, inserting, or modifying genes in the natural context of the genome. Most established gene editing methods rely on a class of enzymes, called nucleases, to make a double- stranded break in the DNA at a targeted location. Nuclease editors have several significant limitations. First, there is a lack of predictability in genetic outcomes when altering gene sequences with nucleases. Nuclease editors can be effective if the desired outcome is to knock out or switch off the whole gene, but do not allow for precise control of the specific genetic outcome at the target site and its effects may vary from individual to individual.

Second, there are potential toxicities associated with double- stranded breaks, such as activating the cell death response and / or genomic instability. In addition, if the double- stranded break occurs in the wrong place, the break can also lead to unwanted gene disruptions. Multiple edits using double- stranded breaks can compound this issue and lead to large- scale genomic translocations and rearrangements, potentially limiting the applicability of nuclease- based approaches in multiplex editing. Third, while gene disruption with nucleases is efficient, making specific sequence changes to correct or modify genes remains largely inefficient. It also requires the simultaneous delivery of an additional DNA template containing the desired, corrected gene sequence, which needs to be positioned at the precise location where the double- stranded break has occurred. The requirement of an additional DNA template significantly increases the complexity of delivery. Finally, nuclease editing does not allow for the correction of genes in non- dividing cells, further limiting their applications, given that the majority of cells in the adult body are non- dividing. Base editors: A potential differentiated class of gene editors Our base editing technology is a differentiated therapeutic approach to gene editing, potentially capable of altering the human genome at the foundational level of genetic information — a single base — without making a double- stranded break in the DNA. The elegance and simplicity of this approach can be thought of as a " pencil, " where the error is erased and the correct letter is written. We believe our base editing platform offers meaningful advantages over established approaches in gene editing, including: • Highly precise and predictable gene editing, designed to make only one type of base edit at the desired target location; • Highly efficient and therapeutically relevant levels of gene correction, which are generally unachievable by nuclease- based editing methods; • Broad applicability in a wide range of cell types, including both dividing and non- dividing cells; • Direct chemical modification of DNA with no requirement for delivery of the corrected DNA sequence; • Avoidance of unwanted DNA modifications associated with double- stranded breaks, including gene disruptions and chromosomal rearrangements, such as translocations or deletions; • The potential for permanent editing of genes, creating the opportunity for a life- long therapeutic outcome, including the ability to treat infants or young children since the edit will be passed on by dividing cells as the child grows; • Multiple applications, including gene correction, gene silencing, gene activation, gene modification and / or multiplex editing of several genes simultaneously • Preservation of natural regulation and a normal number of copies of the gene in the cell by modification of genes in their native genomic setting; and • A versatile and modular product engine that can target a different gene sequence with the same base editor and a different guide RNA. Our proprietary DNA base editors have two principal components that may be fused together or incorporated into one another to form a single protein. The first component is a CRISPR associated protein. These proteins have been adapted and engineered to target specific genomic locations in human cells. The targeting ability of the CRISPR protein has been preserved, but the cutting ability has been modified such that the CRISPR protein does not make a double- stranded break in the DNA. The second component of our base editors is a human deaminase, a class of naturally occurring enzymes. Our Cytosine Base Editors, or CBEs, and our Adenine Base Editors, or ABEs, each use a different, engineered deaminase, which we have designed to act only on single- stranded DNA. The deaminase makes a predictable chemical modification, called deamination, of the amine group on either adenine (A) or cytosine (C) bases. The deaminase in a CBE will convert an amine group of C, resulting in the formation of uracil (U), which is read by the DNA polymerase as a thymine (T) base. Once this strand has been edited, the intermediate DNA consists of an edited strand, containing a U at the target locus, and an unedited strand with a guanine (G) base. The U: G is a mismatch and in order to preserve the edit, we modify the CRISPR to cleave the unedited single strand of the DNA, referred to as nicking. Nicking is intended to increase the efficiency of editing by inducing the cell to use the newly edited strand, and not the unedited strand, as the template for repair, resulting in a U: A pair with minimal translocations. Upon DNA repair or replication, the U is read as a T, resulting in a T: A pair, thereby completing the permanent conversion of a C: G base pair to a T: A base pair. Analogously, when an ABE is used instead of a CBE, the conversion of an amine group of A results in the formation of inosine, which is read by the DNA polymerase as a G, which subsequently leads to an A- to- G change. As a result, an A: T pair is converted to a G: C pair. Because the DNA is double- stranded, by targeting the non- coding strand, we can also convert a T: A pair to a C: G and a G: C pair to a A: T pair in the coding strand. The modular and individual components of our base editors have the potential to be customized for specific diseases, potentially allowing us to create new programs with significant efficiencies in development. For instance, by changing the guide RNA and / or CRISPR protein, we can retarget base editors to different genomic locations based on their gene sequences. By changing the deaminase, we can retarget which base is edited (e. g., C or A). As a result, we believe our base editing technology is highly versatile, efficient, and scalable for the discovery of new drug candidates in the future. Our base editing platform We believe the unique advantages of base editing — single base editing precision, predictable editing outcome, high editing efficiency, and the avoidance of double- stranded breaks — make it a compelling approach for a wide range of therapeutic applications. This includes gene correction, gene modification, gene silencing and gene activation, as well as multiplex editing of several genes simultaneously. To complement our next- generation gene editing technologies, we are also making significant investments in a suite of delivery technologies designed to deliver gene editing or other nucleic acid payloads to the right cells and enable potentially curative therapy. These delivery technologies include ex vivo modalities, such as electroporation, as well as in vivo modalities, such as LNPs. In our pipeline, we have initially focused on applications of these technologies where their delivery capabilities have already been clinically- validated by third parties, such as ex vivo editing of blood stem cells and LNP delivery to the liver. Longer term, we are also investing in more innovative delivery options, including through our collaboration with Orbital Therapeutics, Inc., or Orbital, which is focused on next- generation mRNA and non- viral delivery technology. We have also developed critical enabling capabilities such as mRNA manufacturing and cell processing for autologous and allogeneic cell therapy. Due to the critical importance of high- quality manufacturing and control of production timing and know- how, we have also established a 100, 000 square foot manufacturing facility in Research Triangle Park, North Carolina intended to support a broad range of clinical programs. The facility, which initiated cGMP operations in late 2023, is designed to support manufacturing for our ex vivo cell therapy programs in hematology and our in vivo non- viral delivery programs for liver and liver- mediated diseases, with the capability to scale- up to support potential commercial supply. For our

initial clinical trials, we expect to rely primarily on our internal manufacturing capabilities, along with CMOs with relevant manufacturing experience in genetic medicines. We believe this investment will maximize the value of our portfolio and capabilities, the probability of technical success of our programs, and the speed at which we can provide potentially life- long cures to patients. In summary, we believe that building an integrated platform combining our gene editing capabilities with advanced delivery and manufacturing capabilities will give us the flexibility to develop a sustainable portfolio, featuring rapid development of new programs and lifecycle improvements in our core programs. In addition to our internal pipeline, the breadth and depth of our integrated technology platform gives us the opportunity to create a hub for partnering with other companies, which is an important part of our business model. We believe this model will help us to unlock the full potential of precision genetic medicine across a wider array of possible applications, including many outside our core areas of focus. Our overall goal with these platform activities is to continue expanding our access to the technologies and teams in genetic medicine that will maximize our long- term value creation and impact on patients. Our base editing portfolio We plan to advance multiple programs through clinical development in parallel, with each one potentially capable of delivering proof- of- concept in Phase 1 clinical trials in genetically defined patient populations and potentially reaching approval on an accelerated pathway. Our lead programs are focused on sickle cell disease and AATD, and we are also advancing programs in other genetic diseases, as well as immunology / oncology. The following table summarizes the status of our primary programs: Hematology We are advancing hematology base editing programs in which HSCs are collected from a patient, edited using electroporation, a clinically validated technology for the delivery of therapeutic constructs into harvested cells, and then infused back into the patient following a myeloablative conditioning regimen, such as treatment with busulfan, the standard of care in HSC transplantation today. Once reinfused, the HSCs begin repopulating a portion of the bone marrow in a process known as engraftment. The engrafted, edited HSCs give rise to progenitor cell types with the corrected gene sequences. We are deploying this ex vivo approach in our BEAM- 101 and ESCAPE base editing programs. Sickle cell disease, a severe inherited blood disease, is caused by a single point mutation, E6V, in the beta globin gene. This mutation causes the mutated form of HbS to aggregate into long, rigid molecules that bend red blood cells into a sickle shape under conditions of low oxygen. Sickled cells obstruct blood vessels and die prematurely, ultimately resulting in anemia, severe pain (crises), infections, stroke, organ failure, and early death. Sickle cell disease is the most common inherited blood disorder in the United States, affecting an estimated 100, 000 individuals, of which a significant proportion are of African- American descent (1: 365 births). Beta- thalassemia is another inherited blood disorder characterized by severe anemia caused by reduced production of functional hemoglobin due to insufficient expression of the beta globin protein. Transfusion- dependent beta- thalassemia, or TDBT, is the most severe form of this disease, often requiring multiple transfusions per year. Patients with TDBT suffer from failure to thrive, persistent infections, and life- threatening anemia. The incidence of symptomatic beta- thalassemia is estimated to be 1: 100, 000 worldwide, including 1: 10, 000 in Europe. In the United States, based on affected birth incidence of 0. 7 in 100, 000 births, and increasing survival rates, we expect the population of individuals affected by this disease to be more than 1, 400 and rising. We are pursuing a long- term, staged development strategy for our base editing approach to treat hematological diseases that consists of advancing our lead ex vivo program, BEAM- 101, in Wave 1, improving patient conditioning regimens in Wave 2, and enabling in vivo base editing with delivery directly into HSCs of patients via LNPs in Wave 3. We believe this suite of technologies — base editing, improved conditioning and in vivo delivery for editing HSCs — can maximize the potential applicability of our sickle cell disease programs to patients as well as create a platform for the treatment of many other severe genetic blood disorders. Wave 1: Ex Vivo Base Editing via Autologous Transplant with BEAM- 101 We are using base editing to pursue the development of BEAM- 101 for the treatment of sickle cell disease and beta- thalassemia. BEAM- 101 is a patient- specific, autologous HSC investigational therapy designed to offer a potentially best- in- class profile, incorporating base edits that are intended to mimic single nucleotide polymorphisms seen in individuals with hereditary persistence of fetal hemoglobin, or HPFH. BEAM- 101 aims to alleviate the effects of sickle cell disease or beta- thalassemia by increasing fetal hemoglobin, which is expected to increase functional hemoglobin production and, in the case of sickle cell disease, inhibit hemoglobin S polymerization. In January 2024, we announced that the first patient in our Phase 1 / 2 clinical trial designed to assess the safety and efficacy of BEAM- 101 for the treatment of sickle cell disease, which we refer to as our BEACON trial, has been dosed and successfully achieved engraftment. The BEACON trial is expected to include an initial " sentinel " cohort of three patients, treated one at a time to confirm successful engraftment, followed by dosing in up to a total of 45 patients. The clinical trial is designed to initially include patients ages 18 to 35 with severe sickle cell disease who have received prior treatment with at least one disease- modifying agent with inadequate response or intolerance. Following mobilization, conditioning and treatment with BEAM- 101, patients will be assessed for safety and tolerability, with safety endpoints including neutrophil and platelet engraftment. Patients will also be assessed for efficacy, with efficacy endpoints including the change from baseline in severe vaso- occlusive events, transfusion requirements, hemoglobin F levels, and quality of life assessments. We expect to dose the remaining two patients in the sentinel cohort and initiate dosing in patients in the expansion cohort of the BEACON trial in the first half of 2024, and we plan to report initial data from multiple patients from the BEACON trial in the second half of 2024. The beneficial effects of the fetal form of hemoglobin, or HbF, to compensate for mutations in adult hemoglobin were first identified in individuals with HPFH. Individuals who carry mutations that would have typically caused them to be beta- thalassemia or sickle cell disease patients, but who also have HPFH, are asymptomatic or experience a much milder form of their disease. HPFH is caused by single base changes in the regulatory region of the genes, HBG1 and HBG2, which prevents binding of one or more repressor proteins and increases the expression of gamma globin, which forms part of the HbF tetramer. Using base editing, we are attempting to reproduce these specific, naturally occurring base changes in the regulatory elements of the gamma globin genes, preventing binding of repressor proteins and leading to re- activation of gamma globin expression, and thus the increase in gamma globin levels. Our preclinical in vitro and in vivo characterization of BEAM- 101 using ex vivo delivery achieved precise and efficient editing of human CD34 HSPCs, resulting in long- term engraftment and therapeutically- relevant increases

in target gene expression in mice. Additionally, there have been no observed guide- dependent or guide- independent off- target events for this program. Wave 2: Non- genotoxic Conditioning In parallel with Wave 1 development, we also aim to improve the transplant conditioning regimen for patients undergoing HSCT, reducing toxicity challenges associated with HSCT standard of care. Conditioning is a critical component necessary to prepare a patient' s body to receive the ex- vivo edited cells that must engraft in the patient' s bone marrow in order to be effective. However, today' s conditioning regimens rely on nonspecific chemotherapy or radiation, which are associated with significant toxicities. As a potential alternative to genotoxic conditioning regimens in HSCT, we are advancing our ESCAPE program. ESCAPE aims to avoid toxicity challenges associated with currently available conditioning regimens for patients with sickle cell disease and beta- thalassemia ahead of autologous HSCT, by combining antibody- based conditioning with multiplex gene edited HSCs. ESCAPE may also have applications in other diseases of the blood and immune system where HSCT could deliver potential benefits but has been limited by toxicities associated with current standard of care conditioning regimens. In December 2022, we presented preclinical data at the 2022 American Society of Hematology Annual Meeting and Exposition, or ASH, on our ESCAPE program. Our ESCAPE sickle cell disease program consists of multiplex base edited HSCs that include a therapeutic edit for sickle cell disease at the HGB1 / 2 gene and an additional edit at CD117. Findings presented at ASH included the first in vivo preclinical data for the ESCAPE program, which builds upon data shared earlier in 2022 demonstrating that ESCAPE antibodies bound to wild- type CD117 and blocked binding of its ligand in mice. In addition, we observed depletion of unedited cells and enrichment of edited cells in mice dosed with ESCAPE antibodies. We have made significant investments in our ESCAPE platform and we anticipate initiating Phase 1- enabling preclinical studies for the ESCAPE sickle cell disease program in 2024. Wave 3: In Vivo Base Editing via HSC- targeted LNPs We are also exploring the potential for in vivo base editing programs for sickle cell disease, in which base editors would be delivered to the patient through an infusion of LNPs targeted to HSCs, eliminating the need for transplantation altogether. This approach could provide a more accessible option for patients, particularly in regions where ex vivo treatment is challenging. In preclinical studies, we achieved in vivo validation of our most potent HSC- directed LNP, demonstrating: • durable, dose- dependent mRNA transfection in HSCs, resulting in fluorescent reporter expression in more than 40 % of cells, maintained out to 16 weeks post- delivery; • efficient transfection of human CD34 cells in vitro; and • efficient transfection of nearly 20 % of CD34 HSCs in humanized mice and NHPs at a dose of 1. 0 mg / kg. Genetic Diseases LNPs are a clinically validated technology for delivery of nucleic acid payloads to the liver. LNPs are multi- component particles that encapsulate the base editor mRNA and one or more guides and protect them from degradation while in an external environment, enabling the transient delivery of the base editor in vivo. Because only one dose of a base editing therapy may be needed in a course of treatment, LNPs are a suitable delivery modality that we believe is unlikely to face the complications seen with chronic use of LNPs, such as those observed when delivering oligonucleotides or mRNA for gene therapy. All of the components of the LNP, as well as the mRNA encoding the base editor, are well- defined and can be manufactured synthetically, providing the opportunity for scalable manufacturing. We are currently using LNPs to advance BEAM- 302 and BEAM- 301. BEAM- 302: In Vivo LNP liver- targeting for AATD BEAM- 302 is a liver- targeting LNP formulation of base editing reagents designed to offer a one- time treatment to correct the E342K point mutation (PiZZ genotype) predominantly responsible for the severe form of AATD. AATD is an inherited genetic disorder that can cause early onset emphysema and liver disease. The most severe form of AATD arises when a patient has a point mutation in both copies of the SERPINA1 gene at amino acid 342 position (E342K, also known as the PiZ mutation or the " Z " allele). This point mutation causes Alpha- 1 antitrypsin, or AAT, to misfold, accumulating inside liver cells rather than being secreted, resulting in very low levels (10 %- 15 %) of circulating AAT. In addition to resulting in lower levels, the PiZ AAT protein variant is also less enzymatically effective compared to wildtype AAT protein. CAs a consequence, the lung is left unprotected from neutrophil elastase, resulting in progressive, destructive changes in the lung, such as emphysema, which can result in the need for lung transplants. The mutant AAT protein also accumulates in the liver, causing liver inflammation and cirrhosis, which can ultimately cause liver failure or cancer requiring patients to undergo a liver transplant. It is estimated that approximately 100, 000 individuals in the United States have two copies of the Z allele. There are currently no curative treatments for patients with AATD. With the high efficiency and precision of our base editors, we aim to utilize our ABEs to precisely correct the E342K point mutation and restore the production of functional AAT protein. In 2020, we demonstrated the ability of base editors to directly correct the mutation causing AATD, providing both in vitro and in vivo preclinical proof- of- concept for base editing to correct this disease. In January 2024, we announced that we have submitted a CTA for BEAM- 302, and, assuming CTA acceptance, we plan to initiate a Phase 1 / 2 clinical trial to assess the safety and efficacy of BEAM- 302 at trial sites located outside of the U. S. in the first half of 2024. BEAM- 301: In Vivo LNP liver- targeting for GSD1a BEAM- 301 is a liver- targeting LNP formulation of base editing reagents designed to correct the R83C mutation, the most prevalent disease- causing mutation for, and the mutation which results in the most severe form of, GSD1a. GSD1a is an autosomal recessive disorder caused by mutations in the G6PC gene that disrupts a key enzyme, G6Pase, critical for maintaining glucose homeostasis. Inhibition of G6Pase activity results in low fasting blood glucose levels that can result in seizures and be fatal. Patients with this mutation typically require ongoing corn starch administration, without which they may enter into hypoglycemic shock within one to three hours. Our approach to treating patients with GSD1a is to apply base editing via LNP delivery to repair the two most prevalent mutations that cause the disease, R83C and Q347X. It is estimated that these two point mutations account for 300 and 500 patients, respectively, in the United States. In October 2023, we presented new preclinical data demonstrating the ability of BEAM- 301 to directly correct the R83C mutation. These data showed that a single dose of BEAM- 301 restored clinically meaningful endpoints in in vivo rodent disease models out to at least one year. In the first half of 2024, we plan to submit an IND application to evaluate BEAM- 301 for the treatment of GSD1a at a select number of trial sites in the United States. Immunology / Oncology We believe base editing is a powerful tool to simultaneously multiplex edit many genes without the unintended on- target effects that can result from simultaneous editing with nucleases through the creation of double- stranded breaks. The ability to create a large number of multiplex edits in T cells

could endow CAR- T cells and other cell therapies with combinations of features that have the potential to dramatically enhance their therapeutic potential in treating hematological or solid tumors. BEAM- 201: Universal CD7- targeting CAR- T cells BEAM- 201 is a development candidate comprised of T cells derived from healthy donors that are simultaneously edited at TRAC, CD7, CD52 and PDCD1 and then transduced with a lentivirus encoding for an anti- CD7 CAR that is designed to create allogeneic CD7 targeting CAR- T cells, resistant to both fratricide and immunosuppression. We have dosed the first patient in a first- in- human Phase 1 / 2 clinical trial designed to evaluate the safety and efficacy of BEAM- 201 in patients with relapsed / refractory T- ALL / T- LL. Key safety endpoints for the trial include treatment- emergent and treatment- related adverse events, and key efficacy endpoints include proportion of patients with complete or partial responses, proportion eligible for HSC transplant and proportion achieving minimal residual disease negative status. We are continuing enrollment in the Phase 1 / 2 clinical trial and expect to report an initial clinical dataset for BEAM- 201 in the second half of 2024 and to seek potential partnership for this and other potential ex vivo CAR- T programs, including our ongoing research into creating next- generation allogeneic cell therapies with multiplex base editing. Our portfolio of precision gene editing technologies We have licensed a portfolio of three additional complementary gene editing technologies — prime editing, Cas12b nuclease editing and RNA base editing — for certain fields. Combined with base editing, we have assembled a broad and versatile portfolio of next generation gene editing technologies for the potential treatment of many severe diseases. We have a license to prime editing from Prime Medicine, Inc. Prime editing may be able to achieve the rewriting of short sequences of DNA at a target location. Prime editing utilizes a CRISPR protein to target a mutation site in DNA and to nick a single strand of the target DNA. The guide RNA allows the CRISPR protein to recognize a DNA sequence that is complementary to the guide RNA and also carries a primer for reverse transcription and a replacement template. The reverse transcriptase copies the template sequence in the nicked site, installing the edit. As with base editing, prime editing does not cause double- stranded breaks in the target DNA, resulting in lower insertion and deletion rates than gene editing technologies that rely on double stranded breaks. We have the exclusive right to develop prime editing technology for the creation or modification of any single base transition mutations, as well as any edits made for the treatment of sickle cell disease. Transition mutations (i. e., A- to- G, G- to- A, C- to- T, or T- to- C) are the largest single class of disease- associated genetic mutations and include all of our current targets for base editing programs. We also have a license agreement with The Broad Institute, Inc., or Broad Institute, that gives us access to the Cas12b nuclease family, which allows us to make " cut " edits, which may be appropriate for some applications that require a double stranded break, or to use the general gene targeting ability of Cas12b for other gene editing applications. Our Broad Institute license also gives us access to RNA base editing technology, a two- part modular system using an RNA- directed CRISPR protein for targeting RNA strands and a deaminase for editing. This CRISPR protein, known as Cas13, is modified so that it cannot break the RNA strand, and is fused to a deaminase capable of making a single base edit at a specific target location within the RNA strand. Collaborations We believe our collection of base editing, gene editing and delivery technologies has significant potential across a broad array of genetic diseases. To fully realize this potential, we have established and plan to continue to seek out innovative collaborations, licenses, and strategic alliances with pioneering companies and with leading academic and research institutions. Additionally, we have and intend to continue to pursue relationships that potentially allow us to accelerate our preclinical research and development efforts. We believe these relationships will allow us to aggressively pursue our vision of maximizing the potential of base editing to provide life- long cures for patients suffering from serious diseases. Pfizer In December 2021, we entered into a four- year research collaboration agreement with Pfizer Inc., or Pfizer, focused on in vivo base editing programs for three targets for rare genetic diseases of the liver, muscle and central nervous system. Under the terms of the agreement, we will conduct all research activities through development candidate selection for three pre- specified, undisclosed targets, which are not included in our existing programs. Pfizer may opt in to exclusive, worldwide licenses to each development candidate, after which it will be responsible for all development activities, as well as potential regulatory approvals and commercialization, for each such development candidate. We have a right to opt in, at the end of Phase 1 / 2 clinical trials, upon the payment of an option exercise fee, to a global co- development and co- commercialization agreement with respect to one program licensed under the collaboration pursuant to which we and Pfizer would share net profits as well as development and commercialization costs in a 35 % / 65 % ratio (Beam / Pfizer). Apellis Pharmaceuticals In June 2021, we entered into a research collaboration agreement, or the Apellis Agreement, with Apellis Pharmaceuticals, Inc., or Apellis, focused on the use of our base editing technology to discover new treatments for complement system- driven diseases. Under the terms of the Apellis Agreement, we will conduct preclinical research on six base editing programs that target specific genes within the complement system in various organs, including the eye, liver, and brain. Apellis has an exclusive option to license any or all of the six programs and will assume responsibility for subsequent development. We may elect to enter into a 50- 50 U. S. co- development and co- commercialization agreement with Apellis with respect to one program licensed under the collaboration. Verve Therapeutics In April 2019, we entered into a collaboration and license agreement, or the Verve Agreement, with Verve Therapeutics, Inc., or Verve, a company focused on gene editing for cardiovascular disease treatments, and in July 2022, we and Verve amended the Verve Agreement. Under the terms of the Verve Agreement, as amended, we granted Verve exclusive worldwide licenses under certain of our editing technologies for human therapeutic applications against a total of three liver- mediated, cardiovascular disease targets, including use of our base editing technology for each of these targets and use of certain of our gene editing technology for two of such targets. In exchange, we received shares of Verve common stock. In October 2023, we entered into a transfer and delegation agreement, or the Lilly Agreement, with Eli Lilly and Company, or Lilly, pursuant to which Lilly acquired certain assets and other rights under the Verve Agreement, including our opt- in rights to co- develop and co- commercialize each of Verve's base editing programs for cardiovascular disease, which consist of programs targeting PCSK9, ANGPTL3 and an undisclosed liver- mediated, cardiovascular target. In addition, Lilly acquired the right to receive any future milestone or royalty payments payable to us under the Verve Agreement. Under the terms of the Lilly Agreement, we received a $ 200. 0 million payment and are eligible to receive up to $ 350. 0 million in potential future development- stage payments upon

the completion of certain clinical, regulatory and alliance events. In October 2023, we also entered into a Stock Purchase Agreement, or the Purchase Agreement, with Lilly providing for the sale and issuance of 2, 004, 811 shares, or the Shares, of our common stock to Lilly at a price of $ 24. 94 per share, which was equal to a 15 % premium to the volume- weighted average share price of our common stock over the 30 trading days prior to the date of the Purchase Agreement, for an aggregate purchase price of approximately $ 50 million. The Purchase Agreement contains customary representations, warranties and covenants of each party. Sana Biotechnology In October 2021, we entered into an option and license agreement, or the Sana Agreement, with Sana Biotechnology, Inc., or Sana, pursuant to which we granted Sana non- exclusive research and development and commercial rights to our CRISPR Cas12b technology to perform nuclease editing for certain ex vivo engineered cell therapy programs. Under the terms of the Sana Agreement, licensed products include certain specified allogeneic T cell and stem cell- derived products directed at specified genetic targets, with certain limited rights for Sana to add and substitute such products and targets. The Sana Agreement excludes the grant of any Beam- controlled rights to perform base editing. In 2023, Sana initiated a Phase 1 clinical trial of SC291, its CD19- targeted allogeneic CAR- T cell therapy, in patients with various B- cell malignancies. In November 2023, Sana announced that the FDA cleared its IND application to initiate a first- in- human trial of SC291, in patients with various B- cell mediated autoimmune diseases. In January 2024, Sana announced that the FDA cleared its IND application to initiate a first- in- human trial of SC262, its CD22- directed allogeneic CAR- T cell therapy, in patients with relapsed or refractory B- cell malignancies. In connection with each of the foregoing events, Sana made immaterial milestone payments to us under the Sana Agreement. In September 2022, we entered into a license and research collaboration agreement, or the Orbital Agreement, with Orbital, pursuant to which each of us granted the other licenses to certain technology controlled during the three years after entry into the Orbital Agreement that are necessary or reasonably useful for the non- viral delivery or the design or manufacture of RNA for the prevention, treatment or diagnosis of human disease. Our license to Orbital is for all fields other than our exclusive field and also excludes the targets and substantially all of the indications that are the subject of our existing programs. Our exclusive field consists of all products and biologics that function in the process of gene editing or conditioning for use in cell transplantation, or that act in combination with any such products or biologics. Orbital' s license to us is for all fields other than Orbital' s exclusive field. Orbital' s exclusive field consists of products and biologics that function as vaccines and also of therapeutic proteins, other than therapeutic proteins (i) that use gene editing, (ii) for use in conditioning, (iii) for use in regenerative medicine, (iv) for use as a CAR immune therapy, including CAR- T, CAR- NK and CAR- macrophage compositions, (v) for use as a t- cell receptor therapy or (vi) that modulate certain immune responses. The licenses are exclusive in each party' s exclusive field for three years and non- exclusive in those fields thereafter. We and Orbital agreed that for a period of three years after entry into the Orbital Agreement, subject to limited exceptions, we would not research, develop and commercialize, or grant licenses to research, develop and commercialize, products or biologics within the other party' s exclusive field. Competition The pharmaceutical and biotechnology industries, including the genetic medicines field, are characterized by rapidly advancing technologies, intense competition, and a strong emphasis on intellectual property. While we believe that our differentiated technology, scientific expertise, and intellectual property position provide us with competitive advantages, we face potential competition from a variety of companies in these fields. Within these industries, we will compete with existing large pharmaceutical companies, specialty pharmaceutical companies, and biotechnology companies. There are several other companies utilizing CRISPR / Cas9 nuclease technology, including Caribou Biosciences, Editas Medicine, CRISPR Therapeutics, Intellia Therapeutics, Arbor Biotechnologies and Metagenomi. Several additional companies utilize other nuclease- based gene editing technologies, including other Cas nucleases, Zinc Fingers, Arcuses, and TAL Nucleases, including Sangamo Biosciences, Precision BioSciences, bluebird bio, Allogene Therapeutics, Mammoth Biosciences and Cellectis. Additionally, other gene editing modalities are emerging, including from Prime Medicine, Tessera Therapeutics, Scribe Therapeutics, Tome Biosciences, Life Edit (an ElevateBio company), PerkinElmer (formerly Horizon Discovery) and Intellia Therapeutics. PerkinElmer, Metagenomi, Revvity, and Intellia Therapeutics are developing base editing technology and Tessera Therapeutics is utilizing mobile genetic elements for gene editing. In addition, we face competition from companies utilizing various genetic medicines, epigenetic modulation, oligonucleotide, and CAR- T therapeutic approaches, among others. Within the disease areas that we focus on, we are also aware of competing companies that have approved therapies, those with therapies in development, and others that may emerge in the future. For hemoglobinopathies, these companies include Global Blood Therapeutics (part of Pfizer), CRISPR Therapeutics, Vertex Pharmaceuticals, bluebird bio, Novartis Pharmaceuticals, Editas Medicine, Kamau Therapeutics, Fulcrum Therapeutics, and Agios Pharmaceuticals. For T- cell malignancies, these include iCell Gene Therapeutics, PersonGen and Wugen. More broadly in the immuno- oncology cell therapy space, these include Allogene Therapeutics, Cellectis, CRISPR Therapeutics, Adicet Bio, Bristol Myers Squibb, Fate Therapeutics, Gilead Sciences, Novartis Pharmaceuticals, Poseida Therapeutics, Legend Biotech and Autolus Therapeutics. For our liver targeted therapies, these include Intellia Therapeutics, Editas Medicines, CRISPR Therapeutics, Wave Life Sciences, Moderna, Korro Bio, Arrowhead Pharmaceuticals, Dicerna Pharmaceuticals, Ultragenyx, Arrowhead Pharmaceuticals, LogicBio Therapeutics, Generation Bio and Vertex. 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 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, conducting preclinical studies and clinical trials and seeking approval for 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 CMOs, and in acquiring technologies complementary to, or necessary for, our programs. 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. Intellectual property Our success depends in part on our ability to obtain and maintain proprietary protection for our platform technology, our programs, and know- how related to our business, defend and enforce our intellectual property rights, in particular, our patent rights, preserve the confidentiality of our trade secrets, and operate without infringing, misappropriating or otherwise violating any valid and enforceable intellectual property rights of others. We seek to protect our proprietary position by, among other things, exclusively licensing and filing U. S. and certain foreign patent applications related to our platform technology, existing and planned programs, and improvements that are important to the development of our business, where patent protection is available. Notwithstanding these efforts, we cannot be sure that patents will be granted with respect to any patent applications we have licensed or filed or may license or file in the future, and we cannot be sure that any patents we have licensed or patents that may be licensed or granted to us in the future will not be challenged, invalidated, or circumvented or that such patents will be commercially useful in protecting our technology. For more information regarding the risks related to our intellectual property, please see Item 1A., Risk factors — Risks related to our intellectual property, in~~ this Annual Report on Form 10- K . Our wholly owned and our in..... Annual Report on Form 10- K , in evaluating our company. 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. 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 our financial position and need for additional 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 $ **376. 7 million, $** 132. 5 million ~~,~~ **and** $ 289. 1 ~~million and $ 370. 6~~ million for the years ended December 31, **2024,** 2023 ~~,~~ **and** 2022 ~~and 2021~~ , respectively. As of December 31, ~~2023~~ **2024** , we had an accumulated deficit of $ 1. ~~2~~ **6** billion. We have financed our operations primarily through private placements of our preferred stock, proceeds from sales of our common stock and collaboration revenue. We have devoted substantially all of our efforts to research and development. 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 clinical trials of our product candidates; • continue our research programs and our preclinical development of other product candidates from our research programs; • seek to identify additional research programs and additional product candidates; • initiate preclinical testing and clinical trials for any other product candidates we identify and develop; • maintain, expand, enforce, defend and protect our intellectual property portfolio and provide reimbursement of third- party expenses related to our patent portfolio; • seek marketing approvals for any of our product candidates that successfully complete clinical trials; • establish a sales, marketing, and distribution infrastructure to commercialize any medicines for which we may obtain marketing approval; • further develop our base editing platform; • hire additional personnel, including research and development, clinical, and commercial personnel; • add operational, financial, and management information systems and personnel, including personnel to support our product development; • acquire or in- license products, intellectual property, medicines, and technologies; and • maintain and operate a commercial- scale cGMP manufacturing facility. We have not completed any clinical trials of any product candidates and expect that it will be ~~many~~ years, if ever, before we have a product candidate approved for commercialization. To become and remain profitable, we must develop and, either directly or through collaborators, eventually commercialize a medicine or medicines with significant 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 marketing approval for these product candidates, manufacturing, marketing, and selling those medicines for which we may obtain marketing 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 base editing 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. ~~While~~ **We will need substantial additional funding. If** we **are unable** ~~have recently taken steps~~ to ~~decrease~~ **raise capital when needed, we would be forced to delay, reduce, or eliminate our research and product development programs or future commercialization efforts. We expect** our operating expenses ~~,~~ ~~particularly with respect~~ to **increase as we continue** research and development activities, ~~these expenses have increased substantially in the past and may increase again as we~~ expand clinical trials ~~of~~ , and seek marketing approval for ~~,~~ product candidates. In addition, if we obtain marketing approval for any product candidates we may develop, 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. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. We have ~~recently~~ **in the past** delayed, reduced and eliminated certain research and product development programs to **decrease operating expenses** ~~support potential near- term value drivers and long- term growth~~ . If in the future we are unable to raise capital when needed or on attractive

terms, we may again be forced to delay, reduce, or eliminate programs or curtail commercialization efforts. At December 31, ~~2023~~ **2024** , our cash, cash equivalents, and marketable securities were $ ~~1~~ **850** . ~~2~~ **7** ~~billion~~ **million** . We believe that our existing cash, cash equivalents, and marketable securities will enable us to fund our operating expenses and capital expenditure requirements for at least the next 12 months. However, our operating plan may change as a result of factors currently unknown to us, and we may need to seek additional funding sooner than planned. Our future capital requirements will depend on many factors, including: • the cost of continuing to build our base editing platform; • the costs of acquiring licenses for the delivery modalities that will be used with our product candidates; • the scope, progress, results, and costs of discovery, preclinical development, laboratory testing, manufacturing, and clinical trials for the product candidates we may develop; • the costs of preparing, filing, and prosecuting patent applications, maintaining and enforcing our intellectual property and proprietary rights, and defending intellectual property- related claims; • the costs, timing, and outcome of regulatory review of the product candidates we may develop; • the costs of **preparing for and undertaking** future activities, including product sales, medical affairs, marketing, manufacturing, distribution, coverage and reimbursement for any product candidates for which we receive regulatory approval to commercialize; • the success of our license agreements and our collaborations; • our ability to establish and maintain additional license agreements and collaborations on favorable terms, if at all; • the achievement of milestones or occurrence of other developments that trigger payments under any additional license agreements or collaboration agreements we obtain ~~, including our agreement with Guide Therapeutics, Inc.~~ ; • the payment of success liabilities to Harvard and Broad Institute pursuant to the respective terms of the Harvard License Agreement and the Broad Institute License Agreement, should we choose to pay in cash; • the extent to which our contingent liabilities require cash expenditures; • the extent to which we acquire or in- license products, intellectual property and technologies; ~~and~~ • the costs of operating and expanding our manufacturing capacity **; and • the costs of establishing a sales, marketing, and distribution infrastructure to commercialize any product candidates for which we may obtain marketing approval** . Identifying potential product candidates and conducting preclinical studies 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 marketing approval and achieve product sales. In addition, even if we successfully identify and develop product candidates and those product candidates are approved, we may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of medicines that we do not expect to be commercially available for ~~many~~ years, if ever. 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. Any additional fundraising efforts may divert the attention of our management from their day- to- day activities, which may adversely affect our ability to develop and, if approved, commercialize our product candidates. We cannot be certain that additional funding will be available to us on acceptable terms, or at all. We have no committed source of additional capital and, if we are unable to raise additional capital in sufficient amounts or on terms acceptable to us on a timely basis, we may have to significantly delay, scale back or discontinue the development or, if approved, commercialization of our product candidates or other research and development initiatives. For example, in October 2023, we announced a portfolio reprioritization and strategic restructuring, including cost- reduction initiatives which resulted in the pausing or elimination of certain pipeline programs. Our current and any future license agreements and collaboration agreements may also be terminated if we are unable to meet the payment or other obligations under the agreements. We could be required to seek collaborators for product candidates we may develop at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available or relinquish or license on unfavorable terms our rights to product candidates we may develop in markets where we otherwise would seek to pursue development or commercialization ourselves. If we are unable to obtain funding on a timely basis, we may also be unable to expand our operations or otherwise capitalize on our business opportunities, as desired, which could materially affect our business, financial condition and results of operations. Any of the above events could significantly harm our business, prospects, financial condition and results of operations and cause the price of our common stock to decline. Raising additional capital may cause dilution to our stockholders, restrict our operations, or require us to relinquish rights to our technologies or product candidates we may develop. Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings, collaborations, strategic alliances, and licensing arrangements. We do not have any committed external source of capital. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted. 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. 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 may develop, or we may have to grant licenses on terms that may not be favorable to us. 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. In addition, we have and may in the future enter collaboration and acquisition agreements, pursuant to which we are required to issue additional shares of our common stock in connection with future milestone payment obligations. These and other future issuances to our partners and collaborators may cause substantial dilution to our stockholders. **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 were founded in January 2017 and began operations in July 2017. Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, acquiring and developing our platform and technology, identifying potential product candidates, undertaking preclinical studies and ~~initiating~~ **operating** clinical trials. Many of our product development programs are still in the **early**

clinical, preclinical or research stage of development, and their risk of failure is high. We have not yet demonstrated an ability to successfully complete any clinical trials, including large- scale, pivotal clinical trials, obtain marketing approvals, manufacture a commercial- scale medicine, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful commercialization. Typically, it takes about 10 to 15 years to develop a new medicine from the time it is discovered to when it is available for treating patients. Consequently, any predictions you make about our future success or viability may not be as accurate as they could be if we had a longer operating history. Our limited operating history, particularly in light of the rapidly evolving base editing and gene 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 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, we may encounter other unforeseen expenses, difficulties, complications, delays, and other known and unknown factors. We will eventually need to transition from a company with a research focus to a company capable of supporting commercial activities. We may not be successful in such a transition. 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 do not anticipate generating revenues from product sales for the next several 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 complete research and preclinical and clinical development of the product candidates we or our collaborators may identify; • seek and obtain regulatory and marketing approvals for any of our product candidates for which we or our collaborators successfully complete clinical trials; • launch and commercialize any of our product candidates for which we obtain regulatory and marketing 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 our product candidates for which we or our collaborators obtain regulatory and marketing approval; • develop, maintain, and enhance a sustainable, scalable, reproducible, and transferable manufacturing process for the product candidates we or our collaborators may develop; • maintain and operate a commercial- scale cGMP manufacturing facility; • 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 our product candidates for which we or our collaborators obtain regulatory and marketing approval; • obtain market acceptance of any product candidates we or our collaborators may develop as viable treatment options; • address competing technological and market developments; • implement internal systems and infrastructure, as needed; • negotiate favorable terms in any collaboration, licensing, or other arrangements into which we may enter and performing our obligations in such collaborations, licensing or other arrangements; • maintain, protect, enforce, defend, and expand our portfolio of intellectual property rights, including patents, trade secrets, and know- how; • avoid and defend against third- party interference, infringement, and other intellectual property claims; and • attract, hire, and retain qualified personnel. Even if one or more of the product candidates we or our collaborators may develop are approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved product candidate. Our expenses could increase beyond expectations if we are required by the FDA, the EMA, or other regulatory authorities to perform clinical and other studies in addition to those that we currently anticipate. Even if we are able to generate revenues from the sale of any approved products, we may not become profitable and may need to obtain additional funding to continue operations. Even 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. Our future ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited. We have incurred substantial losses during our history, and we may never achieve profitability. To the extent that we continue to generate taxable losses, any unused **U. S. federal** losses generated after 2017 will carry forward indefinitely to offset future taxable income; any **U. S. federal** taxable losses generated prior to 2018 will carry forward for 20 tax years from the year of generation. Additionally, we continue to generate business tax credits, including **U. S. federal** research and development tax credits, which generally may be carried forward 20 tax years from the year of generation to offset a portion of our future tax liability, if any. Additionally, Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, limit a corporation' s ability to utilize tax attributes to the extent the corporation experiences an " ownership change, " generally defined as a greater than 50 percentage point change in ownership, measured by value, among 5 % or greater shareholders over a rolling three- year testing period. To the extent a corporation experiences an ownership change, utilization of pre- ownership change tax attributes (e. g., net operating losses and general business tax credits) to offset post- ownership change taxable income or taxes, is subject to an annual limitation, generally calculated as the pre- ownership change equity value of the corporation, subject to certain prescribed adjustments, multiplied by the long- term tax exempt rate published monthly by the Internal Revenue Service. We completed a Section 382 study as of December 31, ~~2023~~ **2024** , and determined that **no** ~~we experienced~~ historical ownership changes **occurred since** ~~in June 2017, December 2018, and~~ December 2021. In addition, we **may have experienced additional ownership changes since December 31, 2024 and** may experience ownership changes in the future as a result of 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- ownership change net operating losses or other tax attributes to offset U. S. federal taxable income or taxes may be subject to limitations, which could potentially result in increased future tax liability to us **. There may also be limitations on our ability to use net operating losses and business tax credits at the state level** . Additional limitations on our ability to utilize our net operating losses and other tax attributes to offset future taxable income or taxes may arise as a result of our corporate structure, whereby net operating losses or other tax attributes generated by certain of

our subsidiaries or controlled entities may not be available to offset taxable income or taxes of other subsidiaries or controlled entities. There is also a risk that due to regulatory changes or other unforeseen reasons, our existing net operating losses or business tax credits could expire or otherwise become unavailable to offset future income tax liabilities. As described below in " Comprehensive tax reform legislation could adversely affect our business and financial condition, " the Tax Cuts and Jobs Act of 2017, or the Tax Act, as amended by the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, includes changes to U. S. federal tax rates and the rules governing net operating losses that may significantly impact our ability to utilize our net operating losses to offset taxable income in the future. At the state level, there may also be periods during which the use of net operating losses or business tax credits is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed. In addition, state net operating losses generated in one state cannot be used to offset income generated in another state. For these reasons, we may not be able to realize a tax benefit from the use of our net operating losses or tax credits, even if we attain profitability. ~~If we fail to achieve the cost savings and benefits expected of our portfolio prioritization and strategic restructuring, our business prospects and our financial condition may be adversely affected. Further, the prioritization and restructuring could result in disruptions to our business. In October 2023, we announced a portfolio prioritization and strategic restructuring intended to support potential near- term value drivers and long- term growth. The actual savings or benefits from the prioritization and restructuring may be less than expected or substantially less than expected. The restructuring activities may also result in a loss of continuity, accumulated knowledge and inefficiency. In addition, internal prioritization and restructuring can require a significant amount of time and focus from management and other employees, which may divert attention from operations. Further, the prioritization and restructuring may result in unexpected expenses or liabilities and / or write- offs. If the prioritization and restructuring fails to achieve some or all of the expected cost- savings and benefits, our cash resources may not last as long as estimated and our business, results of operations and financial condition could be materially and adversely affected.~~ Risks related to discovery, development, and commercialization **Base editing is a novel technology that has only recently been clinically validated for human therapeutic use. The approaches we are taking to discover and develop novel therapeutics are early in their development and may never lead to marketable products.** We are focused on developing potentially curative medicines utilizing base editing technology. Although there have been significant advances in the field of gene therapy, which typically involves introducing a copy of a gene into a patient' s cell, and gene editing in recent years, **including the approval of an ex vivo nuclease editing product for treatment of sickle cell disease,** base editing technologies are new and ~~largely unproven~~ **early in their development** . The technologies that we have licensed and are developing have not yet completed any clinical trials. The scientific evidence to support the feasibility of developing product candidates based on these technologies is both preliminary and limited, and base editing and delivery modalities for it are novel. Successful development of product candidates by us will require solving a number of issues, including safely delivering a therapeutic into target cells within the human body or in an ex vivo setting, optimizing the efficiency and specificity of such product candidates, and ensuring the therapeutic selectivity of such product candidates. Several biological steps are required for delivery of base editing medicines to translate into therapeutically active medicines. These processing steps may differ between individuals and differ based on the targeted tissue. These differences could lead to variable levels of therapeutic protein, variable activity, immunogenicity, or variable distribution to tissues further increasing the risk inherent in the development of base editing medicines. There can be no assurance we will be successful in solving any or all of these issues, or that we will be able to progress our preclinical studies or clinical trials in accordance with anticipated timelines. We have only recently brought therapeutics to the clinic, and our future success is highly dependent on the successful development of base editing technologies, cellular delivery methods and therapeutic applications of that technology. While other gene editing technologies have progressed through clinical trials, they continue to suffer from various limitations, and such limitations may affect our future success. We may decide to alter or abandon our initial programs as new data become available and we gain experience in developing base editing therapeutics. ~~For example, in November 2022, we announced that we have decided to optimize our direct correction, " Makassar " approach, alongside our HPFH approach, for Wave 2 and Wave 3 of our sickle cell disease programs.~~ We cannot be sure that our technologies will yield satisfactory products that are safe and effective, scalable or profitable in our initial indications or any other indication we pursue. Development activities in the field of base editing are currently subject to a number of risks related to the ownership and use of certain intellectual property rights that are subject to patent interference proceedings in the United States and opposition proceedings in Europe. For additional information regarding the risks that may apply to our and our licensors' intellectual property rights, see the section entitled " — Risks related to our intellectual property ". ~~The success of~~ **We are early in** our ~~business depends primarily upon our ability to identify, develop~~ **development** ~~, and commercialize~~ **efforts. Our** product candidates ~~based on our gene editing platform. Some of our product development programs~~ are still in ~~the research or~~ preclinical ~~stage of development. Our research programs may fail to identify potential product candidates for~~ **or** clinical development ~~for a number of reasons. Our research methodology may be unsuccessful in identifying potential product candidates, our potential product candidates may be shown to have harmful side effects in preclinical in vitro experiments or animal model studies, they may not show promising signals of therapeutic effect in such experiments or studies or they may have other characteristics that may make the product candidates impractical to manufacture, unmarketable, or unlikely to receive marketing approval. In addition, although we believe base editing will position us to rapidly expand our portfolio of product candidates beyond our current product candidates we may develop after only minimal changes to the product candidate construct, we have not yet successfully developed any product candidate~~ and **it** ~~our ability to expand our portfolio may never materialize. If any of these events occur, we may be forced to abandon our research or development efforts for a program or programs, which would have a material adverse effect on our business, financial condition, results of operations, and prospects. Research programs to identify new product candidates require substantial technical, financial, and human resources. We may focus our efforts and resources on potential programs or product candidates that ultimately prove to be unsuccessful, which would be costly and time- consuming. The gene editing field is~~

~~relatively new and is evolving rapidly. We are focusing our research and development efforts primarily on gene editing using base editing technology, but other gene editing technologies may be discovered that provide significant advantages over base editing, which could materially harm our business. We focus our research and development efforts primarily on gene editing technologies using base editing. Other companies are also engaged in the research and development of gene editing technologies using zinc finger nucleases, engineered meganucleases, transcription activator- like effector nucleases, Cas9 nucleases, transposon editing, prime editing, " gene writing, " programmable addition via site- specific targeting elements, and others. There can be no certainty that base editing technology will lead to the development of genetic medicines or that other gene editing technologies will not be considered better or more attractive for the development of medicines. Moreover, if we decide to focus primarily on gene editing technologies other than those involving base editing, we cannot be certain we~~ will be **years before we or our collaborators commercialize a product candidate, if ever. If we are** ~~able~~ **unable** to **advance our product candidates through clinical development,** obtain **regulatory approval** ~~rights to such technologies. Although all of our founders who currently provide consulting~~ and **ultimately commercialize** ~~advisory services to us in the area of base editing technologies have assignment of inventions obligations to us with respect to the services they perform for us, these assignment of inventions obligations are subject to limitations and do not extend to their work in other fields or~~ **our product candidates** ~~to the intellectual property arising from their employment with their respective academic and research institutions. To obtain intellectual property rights assigned by these founders to such institutions~~ , **or experience significant delays in doing so** ~~we would need to enter into license agreements with such institutions~~ , ~~which may not~~ **our business will** be ~~available on commercially reasonable terms or at all. Further, while our three founders have non- competition clauses in their respective consulting agreements, the non- competition obligation is limited to the field of base editing for human therapeutics, and our founders have developed and may in the future develop new technologies that are outside of the field of their non- competition obligations but may be competitive to our business. For example, David Liu, Feng Zhang and their respective groups at MIT and the Broad Institute have developed novel gene editing technologies, including transposon editing, base editing and prime editing technologies, outside of the field of their non- competition obligations that may be used to develop products that compete with our business. Any of these factors could reduce or eliminate our commercial opportunity, and could have a material~~ **materially harmed** ~~adverse effect on our business, financial condition, results of operations, and prospects~~ . We are early in our development efforts and our future success depends heavily on the successful development of our base editing product candidates and the results of our clinical trials, none of which have yet been completed. Our ability to generate product revenue, which we do not expect will occur for many years, if ever, will depend heavily on the successful development and, if approved, eventual commercialization of our product candidates, which may never occur. We currently generate no revenue from sales of any product, 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 our investigational new drug applications, or INDs, and finalizing the trial design based on discussions with the FDA and other regulatory authorities ~~. The FDA has in the past and may again in the future require us to complete additional preclinical studies and satisfy other FDA requests for our clinical trials, causing the start or progress of such trials to be delayed. For example, in July 2022 the FDA informed us that the BEAM- 201 IND was placed on clinical hold. We subsequently received a formal clinical hold letter from the FDA, in which the FDA requested additional control data for preclinical studies and further analyses of certain off- target editing experiments. We submitted our response to the FDA in November 2022 and in December 2022, we announced that the FDA had lifted the clinical hold~~ . Similarly, in the European Union, or EU, a CTA must be obtained from each member state' s national competent authority where the study is conducted, and a positive opinion of an independent ethics committee. ~~Once the CTA has been granted and a positive ethics committee opinion obtained, the clinical trials may proceed in that specific member state. In the event that a European national competent authority, or other regulatory authority requires us to complete additional preclinical studies or we are required to satisfy other requests from a European national competent authority or other regulatory authority prior to commencing clinical trials, the start of such clinical trials may be delayed a European national competent authority or other regulatory authority may not permit us to proceed into clinical development of for such product candidates.~~ Even after we receive and incorporate guidance from these regulatory authorities, the FDA, European national competent authority, or other regulatory authorities could disagree that we have satisfied their requirements to commence our clinical trial or change their position on the acceptability of our data, trial design or the clinical endpoints selected, which may require us to complete additional preclinical studies or clinical trials or impose stricter requirements for approval than we currently expect. In addition, changes in marketing approval policies during the development period, changes in or the enactment or promulgation of additional statutes, regulations or guidance or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. For example, in December 2022, with the passage of FDORA, Congress required sponsors to develop and submit a **DAP** ~~diversity action plan~~ for each Phase 3 clinical trial or any other " pivotal study " of a new drug or biological product. These plans are meant to encourage the enrollment of more diverse patient populations in late- stage clinical trials of FDA- regulated products **. In June 2024, as mandated by FDORA, the FDA issued draft guidance outlining the general requirements for DAPs. Unlike most guidance documents issued by the FDA, the DAP guidance when finalized will have the force of law because FDORA specifically dictates that the form and manner for submission of DAPs are specified in FDA guidance. On January 27, 2025, in response to an Executive Order issued by President Trump on January 21, 2025, on Diversity, Equity and Inclusion programs, the FDA removed this draft guidance from its website. The implications of this action are not yet known** . Further, in January 2022, the new Clinical Trials Regulation (EU) No 536 / 2014 became effective in the European Union and replaced the prior Clinical Trials Directive 2001 / 20 / EC. This regulation aims at simplifying and streamlining the authorization, conduct and transparency of clinical trials in the European Union. Under the coordinated procedure for the approval of clinical trials, the sponsor of a clinical trial to be conducted in more than one EU Member State will only be required to submit a single application for approval. The submission will be made through the

Clinical Trials Information System, a clinical trials portal overseen by the European Medicines Agency, or EMA, and available to clinical trial sponsors, competent authorities of the EU Member States and the public. Commercialization of our product candidates we may develop will require additional preclinical and clinical development; regulatory and marketing approval in any jurisdictions where our product candidates would be marketed, including by the FDA for the U. S. market and the European Commission upon a positive benefit / risk assessment provided by the EMA in the EEA; obtaining or creating manufacturing supply, capacity and expertise; building of a commercial organization; and significant marketing efforts. The success of product candidates we identify and develop will depend on many factors, including the following: • sufficiency of our financial and other resources to complete the necessary preclinical studies, IND / CTA- enabling studies, and clinical trials; • regulatory clearance of IND applications, CTAs or comparable foreign applications that allow commencement of our planned clinical trials or future clinical trials for our product candidates; • successful enrollment in, and completion of, clinical trials in accordance with all applicable current Good Clinical Practice guidelines, or GCPs, current Good Laboratory Practice guidelines adopted by the International Conference on Harmonization of Technical Requirements for Pharmaceuticals for Human Use, or ICH, and other regulatory requirements from foreign regulatory authorities; • receipt of marketing approvals and, where required, pricing and reimbursement decisions from applicable regulatory authorities; • establishment of arrangements with third- party manufacturers for clinical supply and commercial manufacturing and, where applicable, commercial manufacturing capabilities; • successful development of our internal manufacturing processes and transfer to larger- scale facilities operated by either a contract manufacturing organization, or CMO, or by us; • obtaining and maintaining patent, trade secret, and other intellectual property protection and non- patent exclusivity for our medicines; • launching commercial sales of the medicines, if and when approved, whether alone or in collaboration with others; • acceptance of the products, if and when approved, by patients, the medical community, and third- party payors; • effectively competing with other therapies and treatment options; • a continued acceptable safety profile of the medicines following approval; • enforcing and defending intellectual property and proprietary rights and claims; and • supplying the product at a price that is acceptable to the pricing or reimbursement authorities in different countries. If we do not successfully achieve one or more of these activities 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 do not receive regulatory approvals for our product candidates, we may not be able to continue our operations. If any of the product candidates we may develop, or the delivery modalities we rely on to administer them, cause serious adverse events, undesirable side effects, or unexpected characteristics, such events, side effects or characteristics could delay or prevent regulatory approval of the product candidates, limit the commercial potential, or result in significant negative consequences following any potential marketing approval. We have not completed human clinical trials of any of our product candidates. Moreover, there have been only a limited number of clinical trials involving the use of base editing technology similar to our technology. It is impossible to predict when or if any product candidates we develop will prove safe in humans. In the genetic medicine field, there have been several significant adverse events from gene therapy treatments in the past, including reported cases of leukemia, serious blood disorders and death. There can be no assurance that base editing technologies, or components of our product candidates or methods of delivery, will not cause undesirable side effects, as improper editing of a patient' s DNA and other effects could lead to lymphoma, leukemia, or other cancers, other serious conditions or syndromes or other aberrantly functioning cells. A significant risk in any base editing product candidate is that " off- target " edits may occur, which could cause serious adverse events, undesirable side effects or unexpected characteristics. For example, Erwei Zuo et al. reported that cytosine base editors generated substantial off- target edits, that is, edits in unintended locations on the DNA, when tested in mouse embryos. Such unintended edits are referred to as " spurious deamination. " We cannot be certain that off- target editing will not occur in any of our planned or future clinical studies, and the lack of observed side effects in preclinical studies does not guarantee that such side effects will not occur in human clinical studies. We have developed assays that can detect off- target edits, even when such edits occur at very low frequencies. Using these assays, we have observed off- target edits in our base editing product candidates. As the sensitivity of these assays increases, it is possible that we will continue to detect more such off- target edits. While we do not believe that the off- target edits we have observed to date have had a material adverse impact on the safety or benefit of our product candidates, if, in the future, we detect off- target edits for a product candidate that negatively impact safety or efficacy, our ability to develop the product candidate as a therapeutic could be adversely affected. There is also the potential risk of delayed adverse events following exposure to base editing therapy due to the permanence of edits to DNA or due to other components of product candidates used to carry the genetic material. Further, because base editing makes a permanent change, the therapy cannot be withdrawn, even after a side effect is observed. In addition, Rees et al. and Grunewald et al. have reported that the deaminases we currently use in our C base editors and our A base editors for use in DNA base editing also cause unintended mutations in RNA for as long as the editor is present in the cell. Although we and others have demonstrated the ability to engineer base editors to improve the specificity of their edits in a laboratory setting, we cannot be sure that our engineering efforts will be effective in any product candidates that we may develop. For example, we might not be able to engineer an editor to make the desired change or a by- stander edit could diminish the effectiveness of an edit that we make. In certain of our programs, we plan to use LNPs to deliver our base editors. LNPs have been shown to induce oxidative stress in the liver at certain doses, as well as initiate systemic inflammatory responses that can be fatal in some cases. While we aim to continue to optimize our LNPs, there can be no assurance that our LNPs will not have undesired effects. Our LNPs could contribute, in whole or in part, to one or more of the following: immune reactions; infusion reactions; complement reactions; opsonization reactions; antibody reactions including IgA, IgM, IgE or IgG or some combination thereof; or reactions to the polyethylene glycol from some lipids or polyethylene glycol otherwise associated with the LNP. Certain aspects of our investigational medicines may induce immune reactions from either the mRNA or the lipid as well as adverse reactions within liver pathways or degradation of the mRNA or the LNP, any of which could lead to significant adverse events in one or more of our current or future clinical trials. Many of these types of side effects have been seen for legacy LNPs. There may be

uncertainty as to the underlying cause of any such adverse event, which would make it difficult to accurately predict side effects in future clinical trials and would result in significant delays in our programs. ~~Certain viral vectors that we may use in certain of our base editing programs, including AAV or lentiviruses, 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 viral vectors, several significant side effects were caused by gene therapy treatments, including reported cases of leukemia and death. For example, in February 2021, bluebird bio reported a suspected unexpected serious adverse reaction, or SUSAR, of acute myeloid leukemia, and a SUSAR of myelodysplastic syndrome in its Phase 1 / 2 clinical trial of LentiGlobin, a gene therapy using a lentiviral vector for the treatment of sickle cell disease, which resulted in the FDA placing a temporary clinical hold on the trial and the temporary suspension of the conditional marketing authorization by the EMA of ZYNTEGLO (beti- cel), which also uses a lentiviral vector, for patients 12 years and older with transfusion- dependent beta thalassemia who do not have a β0 / β0 genotype, for whom HSC transplantation is appropriate, but HLA related HSC donor is not available. Other potential side effects of viral vectors 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 malignant transformation. 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 using such technology. Furthermore, the FDA has stated that lentiviral vectors possess characteristics that may pose high risks of delayed adverse events. Such delayed adverse events may occur in other viral vectors, including AAV vectors, at a lower rate.~~ In addition to side effects and adverse events caused by our product candidates, the conditioning administration process or related procedures used in BEAM- 101 and potentially other ex vivo product candidates also can cause adverse side effects and adverse events. **For example, a patient in our BEACON trial for the treatment of sickle cell disease died due to respiratory failure four months after busulfan conditioning and infusion with BEAM- 101. While the investigator determined that the patient' s death was likely related to busulfan conditioning and deemed the event unrelated to BEAM- 101, we cannot be certain of these conclusions, nor that other patients will not experience adverse events from the trial' s conditioning regimen or otherwise.** Additionally, we are developing alternative conditioning ~~regimes~~ **regimens** and we cannot predict if such ~~regimes~~ **regimens** will be compatible with our product candidates. If in the future we are unable to demonstrate that such adverse events were not caused by the conditioning regimens used, or administration process or related procedure, the FDA, the European Commission, EMA or other regulatory authorities could order us to cease further development of, or deny or limit approval of, our product candidates using such regimens, processes or procedures for any or all target indications. Even if we are able to demonstrate that adverse events are not related to the product candidate or the administration of such product candidate, such occurrences could affect patient recruitment, the ability of enrolled patients to complete the clinical trial, or the commercial viability of any product candidates that obtain regulatory approval. If any product candidates we develop are associated with serious adverse events, undesirable side effects, or unexpected characteristics, we may need to abandon their development or limit development to certain uses or subpopulations in which the serious adverse events, undesirable side effects or other characteristics are less prevalent, less severe, or more acceptable from a risk- benefit perspective, any of which would have a material adverse effect on our business, financial condition, results of operations, and prospects. Many product candidates that initially showed promise in early stage testing for treating cancer or other diseases have later been found to cause side effects that prevented further clinical development of the product candidates. If in the future we are unable to demonstrate that any of the above adverse events were caused by factors other than our product candidate, the FDA, the EMA or other regulatory authorities could order us to cease further development of, or deny approval of, any product candidates we are able to 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. If we successfully develop a product candidate and it receives marketing approval, we are required to present a comprehensive, concise, and critical analysis of new or emerging information on the risks of the approved product and on its benefit in approved indications, to enable an appraisal of benefit- risk profile in a Periodic Benefit Risk Evaluation Report, or PBRER, according to an internationally harmonized standard. Additionally, the FDA or a comparable regulatory authority such as the EMA could require us to adopt a Risk Evaluation and Mitigation Strategy, or REMS, or similar requirement such as Risk Management Plan, or RMP, to ensure that the benefits of treatment with such product candidate outweigh 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 health care practitioners, extensive patient monitoring, or distribution systems and processes that are highly controlled, restrictive, and more costly than what is typical for the industry. FDA, EMA, or other comparable regulatory authorities may require specific post- approval trials to be carried out to further characterize the clinical efficacy and / or safety of the product candidate. Furthermore, if we or others later identify undesirable side effects caused by any product candidate that we develop, several potentially significant negative consequences could result, including: • regulatory authorities may suspend or withdraw approvals of such product candidate; • regulatory authorities may require additional warnings on the label or limit the approved use of such product candidate; • we may be required to 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 any product candidates we may identify and develop and could have a material adverse effect on our business, financial condition, and results of operations. We have ~~not tested many of~~ **only recently begun testing** our proposed delivery modalities **and product candidates**

in clinical trials ~~.~~ **and any favorable preclinical results,** ~~For~~ **or** ~~example~~ **initial clinical results** . **are** ~~in certain of our base editing programs we intend to use LNPs to deliver some of our base editors. While LNPs have been used in certain approved therapeutics, they have~~ not **necessarily predictive of results that** ~~been used in any approved gene editing therapy, such as base editors. Furthermore, as with many~~ **may be observed in later** ~~viral- mediated gene therapy approaches, certain~~ clinical ~~trial~~ **trials . There is a high failure rate for drugs and biologics proceeding through clinical trials** ~~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 product candidates are successful, these product candidates may fail to show the desired safety **, purity** and ~~efficacy~~ **potency** 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.~~ Data obtained from preclinical and clinical activities are **also** subject to varying interpretations, and the FDA, EMA, or other regulatory authorities may disagree with our interpretations, which may delay, limit, or prevent regulatory approval. In addition, regulatory delays or rejections may be encountered as a result of many factors, including changes in regulatory policy during the period of product development. Any such adverse events may cause us to delay, limit, or terminate ongoing or planned clinical trials, any of which would have a material adverse effect on our business, financial condition, results of operations, and prospects. **If we experience delays** ~~In addition, the results of preclinical studies~~ or **difficulties in the enrollment or treatment of patients in** clinical trials ~~may not~~ **, our receipt of necessary regulatory approvals could** be **delayed** ~~predictive of the results of later preclinical studies or clinical trials. Such results will not ensure that later preclinical studies or clinical trials will demonstrate similar results. Similarly, even if initial clinical trials in any of our~~ **or prevented** ~~current and future product candidates are successful, they may fail to generate the desired safety, purity, and efficacy data in later stages of clinical development despite having successfully advanced through preclinical studies and initial clinical trials. Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses, and many companies that have believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval of their product candidates~~ . We or our collaborators may not be able to initiate or continue clinical trials for any product candidates we identify or develop if we are unable to locate, enroll, and treat a sufficient number of eligible patients in these trials as required by the FDA, the EMA or other analogous 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 our most advanced programs, as well as for some of our product candidates for pediatric populations, due to a number of factors, including small patient populations as well as screening and testing requirements that limit patient eligibility. In addition, if patients are unwilling to participate in our base editing trials because of negative publicity from adverse events related to the biotechnology, gene therapy, or gene editing fields, competitive clinical trials for similar patient populations, clinical trials in competing products, or for other reasons, the timeline for recruiting patients, conducting studies, and obtaining regulatory approval of any product candidates we may develop may be delayed. Moreover, some of our competitors currently and may in the future have ongoing clinical trials for product candidates that treat the same indications as product candidates we are developing and may develop in the future, and patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' product candidates. Treatment of enrolled patients may also be delayed or prevented due to a number of factors, including the complexity of our trials ~~. For example, our BEACON clinical trial requires patients to undergo mobilization procedures to harvest stem cells for editing and transplant. Patients have in the past and may in the future require multiple rounds of mobilization, which would delay treatment. Furthermore, due to the requirement to include sentinel cohorts and staggered treatment protocols in certain of our trials, such as our BEACON trial, any delay in treating one patient may cause delays in treating others~~ . Clinical trial patient enrollment is also affected by other factors, including: • severity of the disease under investigation; • size of the patient population and process for identifying patients; • design of the trial protocol; • availability and efficacy of approved medications for the disease under investigation; • availability of genetic testing for potential patients; • 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; • perceived risks and benefits of base editing as a therapeutic approach; • efforts to facilitate timely enrollment in clinical trials; • patient referral practices of physicians; • ability to monitor patients adequately during and after treatment; and • proximity and availability of clinical trial sites for prospective patients, especially for those conditions which have small patient pools. 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, including: • difficulty in establishing or managing relationships with contract research organizations, or 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 gene editing technologies. Enrollment or treatment delays in our clinical trials may result in increased development costs for any product candidates we may develop, 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 or treating a sufficient number of patients to conduct our clinical trials as planned, we may need to delay, limit, or terminate ongoing or planned clinical trials, any of which would have an adverse effect on our business, financial condition, results of operations, and prospects. **If clinical trials of any product candidates we identify and develop fail to demonstrate safety, purity and potency 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 marketing approval from regulatory authorities for the sale of any product candidates we identify and develop, we must complete preclinical development and then conduct extensive clinical trials to demonstrate their safety **, purity** and ~~efficacy~~ **potency** 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 studies 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 marketing approval of their product candidates. We and our collaborators may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent our ability to receive marketing approval or commercialize any product candidates we identify and develop, including: • delays in reaching a consensus with regulators on trial design and endpoints; • regulators, institutional review boards, or 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 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 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 clinical trials of any product candidates we 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 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 **; • delays in or cancellations of clinical trials as a result of efforts by the Trump Administration to reduce research funding by the NIH of medical research** ; • 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; • disruption to the operations of the FDA, EMA or other relevant regulatory authority; and • changes in regulatory requirements and guidance that require amending or submitting new clinical protocols or otherwise complying with additional requirements. If we or our collaborators are required to conduct additional clinical trials or other testing of any product candidates we 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 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 marketing approval for any such product candidates we may develop or not obtain marketing 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 marketing 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. 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. Because we have limited financial, scientific and managerial resources, we focus on research programs and product candidates that we identify for specific indications among many potential options. 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 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 medicines. 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. For example, in October 2023, we implemented a strategic restructuring to prioritize development of our ex vivo and in vivo sickle cell disease programs, including BEAM- 101, our ESCAPE conditioning strategy, and in vivo delivery to hematopoietic stem cells program, as well as our in vivo base editor BEAM- 302 in development for the treatment of alpha- 1 antitrypsin deficiency. We also announced plans to explore partnership opportunities for continued development of select programs, including BEAM- 201 and other potential ex vivo CAR- T therapies. While we may identify new collaboration partners who can progress some of these programs, we may not be successful in doing so in a timely manner, on acceptable terms or at all. We may otherwise fail to raise sufficient additional capital in order to progress these programs ourselves or we may determine, for internal resource allocation purposes or for other reasons, to abandon development of these programs. As a result, we could miss valuable opportunities to capitalize on the potential of the programs. We may also allocate internal resources to a product candidate in a therapeutic area in which it would have been more advantageous to enter into a collaboration or that does not prove to have viable commercial opportunities. Any failure to use our financial and human resources efficiently could harm our business and operations. We **are** ~~plan to conduct~~ **conducting** clinical trials at sites outside the United States. The FDA may not accept data from trials conducted in such locations, and the conduct of trials outside the United States could subject us to additional delays and expense. We **are** ~~plan to conduct~~ **conducting** ~~one or more~~ clinical trials with one or more trial sites that are located outside the United States. The acceptance by the FDA or other regulatory authorities of trial data from clinical trials conducted outside their jurisdiction may be subject to certain conditions or may not be accepted at all. In cases where data from foreign clinical trials are intended to serve as the sole basis for marketing approval in the U. S., the FDA will generally not approve the application on the basis of foreign data alone unless (i) the data are applicable to the U. S. population and U. S. medical practice; (ii) the trials were performed by clinical investigators of recognized competence and pursuant to GCP regulations; and (iii) the data may be considered valid without the need for an on- site inspection by the FDA, or if the FDA considers such inspection to be necessary, the FDA is able to validate the data through an on- site inspection or other appropriate means. In addition, even where the foreign trial data are not intended to serve as the sole basis for approval, the FDA will not accept the data as support for an application for marketing approval unless the trial is well- designed and well-conducted in accordance with GCP requirements and the FDA is able to validate the data from the trial through an onsite inspection if deemed necessary. Many foreign regulatory authorities have similar approval requirements. In addition, such foreign trials would be subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA or any comparable foreign regulatory authority will accept data from trials conducted outside of the U. S. or the applicable jurisdiction. If the FDA or any comparable foreign regulatory authority does not accept such data, it would result in the need for additional trials, which could be costly and time- consuming, and which may result in current or future product candidates that we may develop not receiving approval for commercialization in the applicable jurisdiction. Conducting clinical trials outside the U. S. also exposes us to additional risks, including risks associated with: • additional foreign regulatory requirements; • foreign exchange fluctuations; • compliance with foreign manufacturing, customs, shipment and storage requirements; • cultural differences in medical practice and clinical research; • diminished protection of intellectual property in some countries; and • interruptions or delays in our trials resulting from geopolitical events, such as war or terrorism. 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 develop in the United States or any other jurisdiction, and any such approval may be for a narrower indication than we seek. We cannot commercialize a product candidate until the appropriate regulatory authorities have reviewed and approved the product candidate. Even if any product candidates we may develop meet their safety **, purity** and ~~efficacy~~ **potency** 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, EMA' s Committee for Medicinal Products for Human Use, or CHMP, 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 or an RMP. These regulatory authorities may require labeling that includes precautions or contra- indications with respect to conditions of use, or they 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 any product candidates we may develop. Any of the foregoing scenarios could materially harm the commercial prospects for any product candidates we may develop and materially adversely affect our business, financial condition, results of operations, and prospects. Marketing approval by the FDA in the United States, or by the EMA in the EEA, 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 foreign regulatory approval 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 we may develop 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 any product candidates we may develop receive marketing approval, they may fail to achieve the degree of market acceptance by physicians, patients, healthcare payors, and others in the medical community necessary for commercial success. The commercial success of any of our product candidates we may develop will depend upon its degree of market acceptance by physicians, patients, third- party payors, and others in the medical community. Ethical, social, and legal concerns about genetic medicines generally and base editing technologies specifically could result in additional regulations restricting or prohibiting the marketing of our product candidates we may develop. Even if any product candidates we may develop receive marketing approval, they may nonetheless fail to gain sufficient market acceptance by physicians, patients, healthcare payors, and others in the medical community. The degree of market acceptance of any product candidates we may develop, if approved for commercial sale, will depend on a number of factors, including: • the efficacy and safety of such product candidates as demonstrated in clinical trials; • the potential and perceived advantages compared to alternative treatments; • the limitation to our targeted patient population and limitations or warnings contained in approved labeling by the FDA, EMA, or other regulatory authorities; • the ability to offer our medicines for sale at competitive prices; • convenience and ease of administration compared to alternative treatments; • the clinical indications for which the product candidate is approved by the FDA, the EMA, or other regulatory agencies; • public attitudes regarding genetic medicine generally and gene editing and base editing technologies specifically; • the willingness of the target patient population to try novel therapies and of physicians to prescribe these therapies, as well as their willingness to accept a therapeutic intervention that involves the editing of the patient' s gene; • product labeling or product insert requirements of the FDA, the European Commission, 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 timing of market introduction of competitive products; • publicity concerning our products or competing products and treatments; • the strength of marketing and distribution support; • sufficient third- party coverage or reimbursement; and • the prevalence and severity of any side effects. Even if any of our product candidates we may develop are approved, such products may not achieve an adequate level of acceptance, we may not generate significant product revenues, and we may not become profitable. If, in the future, we are unable to establish sales and marketing capabilities or enter into agreements with third parties to sell and market any product candidates we may develop, we may not be successful in commercializing those product candidates if and when they are approved. We **are early in our commercial readiness activities,** do not **yet** have a sales or marketing infrastructure and do not have experience in the sale, marketing, or distribution of pharmaceutical products. To achieve commercial success for any approved medicine for which we retain sales and marketing responsibilities, we must either develop a sales and marketing organization or outsource these functions to third parties. In the future, we may choose to build a focused sales, marketing, and commercial support infrastructure to sell, or participate in sales activities with our collaborators for, some of our product candidates we develop if and when they are approved. There are risks involved with both establishing our own commercial capabilities and entering into arrangements with third parties to perform these services. For example, recruiting and training a sales force or reimbursement specialists 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 and other commercialization 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 commercialization personnel. Factors that may inhibit our efforts to commercialize our product candidates we may develop on our own include: • our inability to recruit and retain adequate numbers of effective sales, marketing, reimbursement, customer service, medical affairs, and other support personnel; • the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future medicines; • the inability of reimbursement professionals to negotiate arrangements for formulary access, reimbursement, and other acceptance by payors; • restricted or closed distribution channels that make it difficult to distribute our product candidates we may develop to segments of the patient population; • the lack of complementary medicines 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 commercialization organization. If we enter into arrangements with third parties to perform sales, marketing, commercial support, and distribution services, our product revenues or the profitability of these product revenues to us may be lower than if we were to market and sell any medicines we may develop ourselves. In addition, we may not be successful in entering into arrangements with third parties to commercialize our product candidates we may develop or may be unable to do so on terms that are favorable to us. We may 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 medicines effectively. If we do not establish commercialization capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our product candidates we may develop. **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 base editing and delivery technology fields are 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 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, and others are based on entirely different approaches. There are several other companies utilizing **base editing** ~~CRISPR / Cas9 nuclease~~ technology, including **PerkinElmer** ~~Caribou Biosciences, Editas Medicine, CRISPR Therapeutics, Intellia Therapeutics, Arbor Biotechnologies and Metagenomi. Several additional companies utilize other nuclease- based gene editing technologies, including Zinc Fingers, Arcuses, and TAL Nucleases, including Sangamo Biosciences, Precision BioSciences, bluebird bio, Allogene Therapeutics, Mammoth Biosciences and Cellectis. Additionally, newer gene editing modalities are emerging, including from Prime Medicine, Tessera Therapeutics, Scribe Therapeutics, Tome Biosciences~~ , Life Edit (an ElevateBio company), **Metagenomi, Revvity** ~~PerkinElmer (formerly Horizon Discovery)~~ and Intellia Therapeutics ~~. PerkinElmer, Metagenomi, Revvity, and Intellia Therapeutics are developing base editing technology and Tessera Therapeutics is utilizing mobile genetic elements for gene editing~~ . In addition, we face competition from companies utilizing **other gene editing modalities and** various **other** ~~gene therapy, epigenetic --- genetic modulation~~ **medicines. Within the disease areas that we focus on** , ~~oligonucleotide~~ **we are also aware of competing companies that have approved therapies** , **those with therapies in development,** and ~~CAR- T~~ **others that may emerge in the future. For sickle cell disease, these companies include CRISPR** ~~therapeutic~~ **Therapeutics** ~~approaches~~ **, Vertex Pharmaceuticals, bluebird bio, Novartis Pharmaceuticals, Kamau Therapeutics, Fulcrum Therapeutics, Tessera Therapeutics, Cimeio Therapeutics and Agios Pharmaceuticals** . **For our AATD targeted therapies, these include Wave Life Sciences, Moderna, Korro Bio, Tessera Therapeutics and Arrowhead Pharmaceuticals** 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 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, preclinical testing, conducting 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, EMA, 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 rights, we could face more litigation with respect to the validity and / or scope of patents relating to our 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 genetic medicines, and gene editing and base editing in particular, may negatively impact regulatory approval of, and / or demand for, our potential products** . Our potential therapeutic products involve editing the human genome. The clinical and commercial success of our potential products will depend in part on public understanding and acceptance of the use of gene editing therapy for the prevention or treatment of human diseases. Public attitudes may be influenced by claims that gene editing is unsafe, unethical, or immoral, and, consequently, our product candidates may not gain the acceptance of the public or the medical community. ~~For example, a public backlash developed against gene therapy following the death of a patient in 1999 during a gene therapy clinical trial. The death of the clinical trial subject was due to complications related to AAV vector administration. In addition, in 2020, three patients in Audentes Therapeutics' clinical trial investigating AT132 (a gene therapy product candidate which was being delivered via AAV administration) for X- linked myotubular myopathy (XLMTM) died. The immediate cause of death in two cases was sepsis and in a third case was gastrointestinal bleeding, each of which followed progressive liver dysfunction that occurred within the first 4- 6 weeks following AT132 dosing, and which did not respond to standard treatment.~~ Adverse public attitudes may adversely impact our ability to enroll clinical trials. Moreover, our success will depend upon physicians prescribing, and their patients being willing to receive, treatments that involve the use of product candidates we may develop in lieu of, or in addition to, existing treatments with which they are already familiar and for which greater clinical data may be available. In addition, gene editing technology is subject to public debate and heightened regulatory scrutiny due to ethical concerns relating to the application of gene editing technology to human embryos or the human germline. ~~For example, academic scientists in several countries, including the United States, have reported on their attempts to edit the gene of human embryos as part of basic research. In addition, in November 2018, Dr. Jiankui He, a Chinese biophysics researcher who was an associate professor in the Department of Biology of the Southern University of Science and Technology in Shenzhen, China, reportedly claimed he had created the first human genetically edited babies, twin girls. This claim, and another that Dr. He had helped create a second gene- edited pregnancy, was subsequently confirmed by Chinese authorities and was negatively received by the public, in particular those in the scientific community. In the wake of the claim, the World Health Organization established a new advisory committee to create global governance and oversight standards for human gene editing and announced plans for a new global registry to track research on human gene editing. The Alliance for Regenerative Medicine also released principles for the use of gene editing in therapeutic applications endorsed by a number of companies that~~

use gene editing technologies. Regulation of gene editing technology varies across jurisdictions. In the United States, germline editing for clinical application has been expressly prohibited since enactment of a December 2015 FDA ban on such activity. Prohibitions are also in place in the U. K., across most of Europe, in China, and many other countries around the world. In the United States, the NIH has announced that the agency would not fund any use of gene editing technologies in human embryos, noting that there are multiple existing legislative and regulatory prohibitions against such work, including the Dickey- Wicker Amendment, which prohibits the use of appropriated funds for the creation of human embryos for research purposes or for research in which human embryos are destroyed. Laws in the U. K. prohibit genetically modified embryos from being implanted into women, except that mitochondrial replacement therapy has been permitted in the U. K. since 2016. Separately, embryos can be altered in the U. K. in research labs under license from the Human Fertilisation and Embryology Authority. Research on embryos is more tightly controlled in some other European countries. Moreover, in an annual worldwide threat assessment report delivered to the U. S. Congress in February 2016, the U. S. Director of National Intelligence stated that research into gene editing that is conducted under different regulatory standards than those of Western countries probably increases the risk of the creation of potentially harmful biological agents or products, including weapons of mass destruction. He noted that given the broad distribution, low- cost, and accelerated pace of development of gene editing technology, its deliberate or unintentional misuse could have far- reaching economic and national security implications. Although we do not use our technologies to edit human embryos or the human germline, such public debate about the use of gene editing technologies in human embryos and heightened regulatory scrutiny could prevent or delay our development of product candidates. More restrictive government regulations or negative public opinion would have a negative effect on our business or financial condition and may delay or impair our development and commercialization of product candidates or demand for any product candidates we may develop. Adverse events in our preclinical studies or clinical trials or those of our competitors or of academic researchers utilizing gene editing technologies, even if not ultimately attributable to product candidates we may identify and develop, and the gene publicity could result in increased governmental regulation, unfavorable public perception, potential regulatory delays in the testing or approval of potential product candidates we may identify and develop, stricter labeling requirements for those product candidates that are approved, and a decrease in demand for any such product candidates. Use of gene editing technology by a third party or government to develop biological agents or products that threaten U. S. national security could similarly result in such negative impacts to us. Even if we are able to commercialize any product candidates, such products may become subject to unfavorable pricing regulations, third- party reimbursement practices, or healthcare reform initiatives, which would harm our business. The regulations that govern marketing approvals, pricing, and reimbursement for new medicines vary widely from country to country. Some countries require approval of the sale price of a medicine before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a medicine in a particular country, but then be subject to price regulations that delay or might even prevent our commercial launch of the medicine, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the medicine in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates we may develop, even if any product candidates we may develop obtain marketing approval. Our ability to commercialize any medicines successfully also will depend in part on the extent to which reimbursement for these medicines and related treatments will be available from government authorities or healthcare program, private health plans, and other organizations. Government authorities and third- party payors, such as private health plans, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U. S. healthcare industry and elsewhere is cost containment. Government authorities and third- party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. For example, the Inflation Reduction Act of 2022, or IRA, includes several provisions that may impact our business, including provisions that impose new manufacturer financial liability on all drugs in Medicare Part D, allow the U. S. government to negotiate Medicare Part B and Part D pricing 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 the rebate rule that would require pass through of pharmacy benefit manager rebates to beneficiaries. We cannot yet predict the effect the IRA will have on our business and the healthcare industry in general. Increasingly, third- party payors are also challenging the prices charged for medical products and requiring that drug companies provide them with predetermined discounts from list prices. Novel medical products, if covered at all, may be subject to enhanced utilization management controls designed to ensure that the products are used only when medically necessary. Such utilization management controls may discourage the prescription or use of a medical product by increasing the administrative burden associated with its prescription or creating coverage uncertainties for prescribers and patients. We cannot be sure that reimbursement will be available for any medicine that we commercialize and, if reimbursement is available, that the level of reimbursement will be adequate. Reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If reimbursement is not available or is available only to limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval. There may be significant delays in obtaining reimbursement for newly approved medicines, and coverage may be more limited than the purposes for which the medicine is approved by the FDA, the EMA or other regulatory authorities outside the United States. Moreover, eligibility for reimbursement does not imply that any medicine will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale, and distribution. Interim reimbursement levels for new medicines, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the medicine and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost medicines and may be incorporated into existing payments for other services. Net prices for medicines may be reduced by mandatory discounts or rebates required by government healthcare

programs or private payors and by any future relaxation of laws that presently restrict imports of medicines from countries where they may be sold at lower prices than in the United States. Our inability to promptly obtain coverage and profitable payment rates from both government- funded and private payors for any approved medicines we may develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize medicines, and our overall financial condition. 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 these 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 we may develop. 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 **the** genetic medicines ~~, 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 product candidates we may develop 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 product candidates we may develop. Even if coverage is provided, the approved reimbursement amount may not be adequate to realize a sufficient return on our investment. Moreover, the downward pressure on healthcare costs in general, particularly prescription drugs and surgical procedures and other treatments, has become intense. As a result, increasingly high barriers are being erected to the entry of new product candidates such as ours. If we are unable to obtain adequate levels of reimbursement, our ability to successfully market and sell any product candidates we may develop will be harmed. If the market opportunities for any product candidates we may develop are smaller than we believe they are, our potential revenues may be adversely affected, and our business may suffer. Because the target patient populations for many of the product candidates we may develop are small, we must be able to successfully identify patients and achieve a significant market share to maintain profitability and growth. We focus a substantial portion of our research and product development on treatments for rare genetically defined diseases. Many of our product candidates we may develop are expected to target a single mutation; as a result, the relevant patient population may therefore be small. Our projections of both the number of people who have these diseases, as well as the subset of people with these diseases who have the potential to benefit from treatment with product candidates we may develop, are based on estimates. These estimates may prove to be incorrect and new studies may change the estimated incidence or prevalence of these diseases. The number of patients in the United States, Europe, and elsewhere may turn out to be lower than expected, and patients may not be amenable to treatment with our product candidates we may develop, or may become increasingly difficult to identify or gain access to, all of which would adversely affect our business, financial condition, results of operations, and prospects. Additionally, because of the potential that any product candidates we develop could cure a target disease, we may not receive recurring revenues from patients and may deplete the patient population prevalence through curative therapy. If we are unable to successfully identify patients who are likely to benefit from therapy with any product candidates we develop, or experience significant delays in doing so, we may not realize the full commercial potential of any medicines we may develop. Our success may depend, in part, on our ability to identify patients who are likely to benefit from therapy with any medicines we may develop, which requires those potential patients to have their DNA analyzed for the presence or absence of a particular sequence. If we, or any third parties that we engage to assist us, are unable to successfully identify such patients, or experience delays in doing so, then: • our ability to develop any product candidates may be adversely affected if we are unable to appropriately select patients for enrollment in our clinical trials; and • we may not realize the full commercial potential of any product candidates we develop that receive marketing approval if, among other reasons, we are unable to appropriately select patients who are likely to benefit from therapy with our medicines. Any product candidates we develop may require use of a companion diagnostic to identify patients who are likely to benefit from therapy. If safe and effective use of any of our product candidates we may develop depends on a companion diagnostic, we may not receive marketing approval, or marketing approval may be delayed, if we are unable to or are delayed in developing, identifying, or obtaining regulatory approval or clearance for the companion diagnostic product for use with our product candidate. Identifying a manufacturer of the companion diagnostic and entering into an agreement with the manufacturer could also delay the development of our product candidates. As a result of these factors, we may be unable to successfully develop and realize the commercial potential of any product candidates we may

identify and develop, and our business, financial condition, results of operations, and prospects would be materially adversely affected. Product liability lawsuits against us could cause us to incur substantial liabilities and could limit commercialization of any medicines that we may develop. We face an inherent risk of product liability exposure related to the testing in human clinical trials of any product candidates we may develop and will face an even greater risk if we commercially sell any medicines that we may develop. If we cannot successfully defend ourselves against claims that our product candidates or medicines caused injuries, we could incur substantial liabilities. Regardless of merit or eventual outcome, liability claims may result in: • decreased demand for any product candidates or medicines that we may develop; • injury to our reputation and significant negative media attention; • withdrawal of clinical trial participants; • significant time and costs to defend the related litigation; • substantial monetary awards to trial participants or patients; • loss of revenue; and • the inability to commercialize any medicines that we may develop. Although we maintain product liability insurance coverage, it may not be adequate to cover all liabilities that we may incur. We anticipate that we will need to increase our insurance coverage ~~when~~ **as** we ~~begin~~ **continue** clinical trials and if we successfully commercialize any medicine. 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 **. We are subject to regulatory and operational risks associated with our internal manufacturing facility. We have an approximately 100, 000 square foot manufacturing facility in Research Triangle Park, North Carolina intended to support clinical and commercial production of certain of our product candidates and components thereof. We aim to follow cGMP processes necessary to release product for our clinical trials and to meet all requirements from regulatory agencies, including the FDA, to allow us to support research, clinical and, if approved, commercial production of certain of our product candidates and components thereof. However, we can provide no assurances that our facility will be able to support our intended internal manufacturing capabilities and / or needs or comply with regulatory agency requirements. Furthermore, while the design of our facility is based on current standards for biotechnology facilities, it was not pre- approved by any regulatory agency, nor has the facility been inspected by any regulatory agency such as the FDA. If we are unable to operate our facility at the intended capacity, or if our facility is determined not to comply with applicable regulatory requirements, we may be unable to manufacture our products or product candidates in a timely manner, which could significantly impair our ability to develop, obtain approval for, or commercialize our product candidates. Additionally, we have incurred substantial expenditures in constructing our facility, and expect to incur significant additional expenditures operating our facility in the future. To the extent our facility does not operate at capacity or comply with regulatory requirements, we may incur expenditures beyond those we currently contemplate, including costs associated with engaging third parties to meet our manufacturing needs or undertaking remediation efforts to bring our facility into compliance with regulatory standards. Any such delays, interruptions or increased costs arising from the operation of our manufacturing facility could materially harm our business, operating results, financial condition and prospects** . If we or any CMOs 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 CMOs 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 and radioactive 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. Further, while we carry biological or hazardous waste insurance coverage, such insurance coverage may not be adequate to cover losses, and our property, casualty, and general liability insurance policies specifically exclude coverage for damages and fines arising from biological or hazardous waste exposure or contamination. Accordingly, 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 **. Genetic medicines 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 or commercialization programs, limit the supply of our 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~~ **regulatory** filings. If we successfully develop product candidates, we may encounter problems achieving adequate quantities and quality of clinical- grade materials that meet FDA, EMA or other comparable applicable foreign standards or specifications with consistent and acceptable production yields and costs. In addition, our product candidates we may develop will require complicated delivery modalities, such as electroporation ~~,~~ **and** LNPs ~~, or viral vectors~~ , 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. Furthermore, we intend to use novel ~~viral~~ technologies to deliver the base editor and guide RNA constructs of product candidates, however scientific evidence to support the feasibility of developing product candidates based on these technologies is both preliminary and limited. We also may 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. 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. Risks related to our relationships with third parties We rely on and expect to continue to rely on third parties to manufacture components of our product candidates we may develop, conduct our clinical trials and some aspects of our research and preclinical testing, and those third parties may not perform satisfactorily, including failing to meet deadlines for the completion of such trials, research, or testing. We rely on and expect to continue to rely on third parties, such as CMOs, CROs, clinical data management organizations, medical institutions, and clinical investigators, to conduct some aspects of our research and preclinical testing, to manufacture components of our product candidates and to conduct our clinical trials. 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 research and development activities reduces our control over these activities but does not relieve us of our responsibilities. For example, we 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, EMA and other regulatory authorities require us to comply with standards, commonly referred to as Good Clinical Practices, for conducting, recording, and reporting the results of clinical trials to assure 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 ongoing 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 design the clinical trials for our product candidates, we rely on and expect to continue to rely on CROs to conduct some or all of the 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 clinical trials also results 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. 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 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 product candidates may be delayed, we may not be able to obtain regulatory approval and commercialize our 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 contract with third parties for the manufacture and supply of materials for our research programs, preclinical studies and clinical ~~trial~~ **trials** and expect to continue to do so for at least a portion of our future research programs, preclinical studies and clinical trials and for commercialization of any product candidates that we may develop. This reliance on third parties increases the risk that we will not have sufficient quantities of such materials, product candidates, or any medicines that we may develop and commercialize, or that such supply will not be available to us at an acceptable cost, which could delay, prevent, or impair our development or commercialization efforts. We currently rely on third- parties for the manufacture and supply of materials for a portion of our preclinical studies and clinical trials, and may continue to do so for future research programs, preclinical studies, clinical testing and for commercial supply of any product candidates that we may develop and for which we or our collaborators obtain marketing approval. ~~We do not have a long- term supply agreement with any of the third- party suppliers, and we purchase our required supply on an order- by- order basis.~~ While we have built a manufacturing facility designed to support manufacturing for our ex vivo cell therapy programs in hematology ~~and oncology~~ and in vivo non- viral delivery programs for liver diseases in Research Triangle Park, North Carolina, we cannot be certain that we will be able to maintain cGMP compliance, expand our internal manufacturing capacity, or meet the planned manufacturing needs of our programs. We may be unable to establish long- term supply agreements with third- party suppliers or to do so on acceptable terms. Even if we are able to establish long- term supply agreements with third- parties, reliance on third- parties entails additional risks, including: • the possible breach of the manufacturing or supply agreement by the third party; • the possible termination or nonrenewal of the agreement by the third party at a time that is costly or inconvenient for us; • reliance on the third party for regulatory compliance, quality assurance, safety, and pharmacovigilance and related reporting; and • the possible inability of third- party suppliers to supply and / or transport materials, components and products to us in a timely manner as a result of disruptions to the global supply chain or other factors. Third- party suppliers may not be able to comply with cGMP regulations or other regulatory requirements outside the United States. Our failure, or the failure of third- party suppliers, to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocations, seizures or recalls of product candidates or medicines, operating restrictions, and criminal prosecutions, any of which could significantly and adversely affect supplies of our medicines and harm our business, financial condition, results of operations, and prospects. For example, we rely on various CROs to obtain non- human primates, or NHPs, for use in preclinical development work. ~~In February 2023, Charles River Laboratories, or Charles River, one of our primary suppliers of NHPs, announced it received a subpoena from the United States Department of Justice with respect to its importation of NHPs from Cambodia. Charles River further announced that it has voluntarily suspended NHP shipments from Cambodia at this time.~~ While we believe we currently have access to a supply of NHPs adequate to meet our near- term needs, such supply may nevertheless be adversely affected by supply chain limitations. If we are unable to secure adequate supply of NHPs ~~from Charles River or other CROs, or the shortage of NHPs causes the price of NHPs to rise substantially,~~ certain of our preclinical development efforts will be delayed, and the cost of conducting discovery projects and preclinical development activities may substantially increase. Such delays or cost increases could materially adversely affect our discovery and preclinical development activities and our business. Any medicines that we develop may compete with other product candidates and products for access to manufacturing facilities or supplies. There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing drug components and drug product necessary for gene editing. Any performance failure on the part of our existing or future suppliers could delay preclinical or clinical development or marketing approval. We do not currently have arrangements in place for redundant supply of all drug components and drug products necessary for our gene editing product candidates. If any one of our current contract manufacturers or suppliers cannot perform as agreed, we may be required to replace that manufacturer or supplier. Although we believe that there are several potential alternative suppliers to support any product candidates we may develop, we may incur added costs and delays in identifying and qualifying any such replacement. Our current and anticipated future dependence upon others for the manufacture of any product candidates we may develop may adversely affect our future profit margins and our ability to commercialize any medicines that receive marketing approval on a timely and competitive basis. As our drug development pipeline increases and matures, the increased demand for clinical supplies from our facilities and third parties may impact our ability to operate. We will require increased capacity across our entire supply chain. Furthermore, we rely on many service providers, including those that provide manufacturing or testing services, all of whom have inherent risks in their operations that may adversely impact our operations. Completion of our clinical trials and commercialization of our product candidates require access to, or development of, facilities to manufacture our product candidates at sufficient yields and, if approved, at commercial- scale. We have limited experience manufacturing any of our product candidates in the volumes that are necessary to support clinical trials and no experience manufacturing at volumes that are necessary to support commercial sales. Efforts to establish these capabilities may not meet initial expectations as to scheduling, scale- up, reproducibility, yield, purity, cost, potency or quality. In addition, other companies, many with substantial resources, compete with us for access to the materials needed to manufacture our product candidates. We currently utilize, and expect to continue to utilize, third parties to, among other things, manufacture raw materials, components, parts, and consumables, and to perform quality testing. If the field of base editing and other genetic medicines continues to expand, we may encounter increasing competition for these materials and services. Demand for third- party manufacturing or testing facilities may grow at a faster rate than their existing capacity, which could disrupt our ability to find and retain third- party manufacturers capable of producing sufficient quantities of such raw materials, components, parts, and consumables required to manufacture our product candidates. The use of service providers and suppliers could expose us to risks, including, but not limited to: • termination or non- renewal of supply and service agreements with third parties in a manner or at a time that is costly or damaging to us; • disruptions to the operations of these

suppliers and service providers caused by conditions unrelated to our business or operations, including the bankruptcy of the supplier or service provider; and • inspections of third- party facilities by regulatory authorities that could have a negative outcome and result in delays to or termination of their ability to supply our requirements. Our reliance on third- party manufacturers may adversely affect our operations or result in unforeseen delays or other problems beyond our control. Because of contractual restraints and the limited number of third- party manufacturers with the expertise, required regulatory approvals and facilities to manufacture our product candidates on a clinical and, if approved, a commercial scale, replacement of a manufacturer may be expensive and time- consuming and may cause interruptions in the production of our product candidates. A third- party manufacturer may also encounter difficulties in production. These problems may include: • difficulties with production costs, scale up and yields; • availability of raw materials and supplies; • quality control and assurance; • shortages of qualified personnel; • compliance with strictly enforced federal, state and foreign regulations that vary in each country where products might be sold; and • lack of capital funding. As a result, any delay or interruption could have a material adverse effect on our business, financial condition, or results of operations. We have and may in the future enter into collaborations with third parties for the research, development, and commercialization of certain of the product candidates we develop. If any such collaborations are not successful, we may not be able to capitalize on the market potential of those product candidates. We have and may in the future seek third- party collaborators for the research, development, and commercialization of certain of the product candidates we develop. Under the agreements we have entered into and any agreements we may enter into in the future with any third parties, we have and will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of any product candidates we seek to develop with them. Our ability to generate revenues from these arrangements will depend on our collaborators' abilities to successfully perform the functions assigned to them in these arrangements. We cannot predict the success of any collaboration that we enter into. Collaborations involving our research programs or any product candidates we may develop pose numerous risks to us, including the following: • Collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations. • Collaborators may not pursue development and commercialization of any product candidates we develop or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborator' s strategic focus or available funding or external factors such as an acquisition that diverts resources or creates competing priorities. • Collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials, or require a new formulation of a product candidate for clinical testing. • Collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our medicines or product candidates we develop if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours. • Collaborators with marketing and distribution rights to one or more medicines may not commit sufficient resources to the marketing and distribution of such medicine or medicines. • Collaborators may not properly obtain, maintain, enforce, or defend our intellectual property or proprietary rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our proprietary information or expose us to potential litigation. • Disputes may arise between the collaborators and us that result in the delay or termination of the research, development, or commercialization of our medicines or product candidates or that result in costly litigation or arbitration that diverts management attention and resources. • We may lose certain valuable rights under circumstances identified in our collaborations, including if we undergo a change of control. • Collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates we may develop. • Collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all. If a present or future collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our product development or commercialization program under such collaboration could be delayed, diminished, or terminated. If our collaborations do not result in the successful development and commercialization of product candidates, 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. Furthermore, even if we receive such payments, they will likely result in payment obligations under license agreements with our licensors, which could be substantial. If we do not receive the funding we expect under these collaboration agreements, or if the funding is substantially offset by payment obligations to our licensors, our development of product candidates could be delayed, and we may need additional resources to develop product candidates. In addition, if one of our collaborators terminates its agreement with us, we may find it more difficult to find a suitable replacement collaborator or attract new collaborators, and our development programs may be delayed or the perception of us in the business and financial communities could be adversely affected. All of the risks relating to product development, regulatory approval, and commercialization described in this Annual Report on Form 10- K apply to the activities of our collaborators. These relationships, or those like them, 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. In addition, 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 may develop 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. 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 corporate or academic collaborators 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 our product candidates we may develop. 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, terminate their agreements with us prematurely, or fail to devote sufficient resources to the development and commercialization of products. Any of these developments could harm our product development efforts. If we are not able to establish collaborations on commercially reasonable terms, we may have to alter our development and commercialization plans. Our product development and research programs and the potential commercialization of any product candidates we may develop will require substantial additional cash to fund expenses. 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 collaborators. 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 agreements on certain terms with potential collaborators. Collaborations are complex and time-consuming to negotiate and document. 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. 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, if approved, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or, if approved, commercialization activities at our own expense. If we elect to increase our expenditures to fund development or, if approved, 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. We ~~helped launch a new company, Orbital Therapeutics, Inc., and~~ are exposed to risks associated with ~~the launch of the new company~~ **our minority interest in Orbital Therapeutics , Inc** ~~including that we may not realize the advantages we expect from it~~ . In September 2022, we helped launch Orbital Therapeutics Inc., or Orbital, in collaboration with ARCH Venture Partners, with a goal of advancing ribonucleic acid, or RNA, medicines. In connection with the Orbital launch, we entered into a license and collaboration agreement, or the Orbital Agreement, with Orbital pursuant to which we and Orbital each granted the other licenses to certain technology controlled by it necessary or reasonably useful for the non- viral delivery or the design or manufacture of RNA for the prevention, treatment or diagnosis of human disease. In addition, concurrently with our entry into the Orbital Agreement, Orbital issued us 75 million shares of its common stock. ARCH Venture Partners is also a stockholder of Orbital, ~~two~~ **one** of our directors affiliated with ARCH Venture Partners, ~~Kristina Burow and~~ John Maraganore, as well as John Evans, our Chief Executive Officer, are members of the board of directors of Orbital ~~, and our President, Dr~~ . **We** ~~Giuseppe Ciaramella, is the interim chief executive officer of Orbital and is a member of its board of directors. Because of our minority ownership in Orbital, we~~ have a lesser degree of control over its business operations, thereby potentially subjecting us to additional financial, legal, operational and compliance risks. In addition, the controlling shareholders or management of Orbital may have business interests, strategies or goals that are inconsistent with ours. These risks include the possibility that Orbital or such other stockholders have economic or business interests or goals that are or become inconsistent with our economic or business interests or goals; are in a position to take action contrary to our instructions, requests, policies or objectives; subject us to unexpected liabilities or risks; take actions that reduce our return on investment; act in a manner that compromises our key licensed rights, or important intellectual or other rights that we own or license; or take actions that harm our reputation or restrict our ability to run our business. Furthermore, as a result of our ownership in Orbital, we may in the future be required to include Orbital' s financial information in our consolidated financial results. We have not previously included a minority- owned subsidiary in our financial statements and we would therefore be subject to increased risk in accurately representing and incorporating Orbital financial statements into our own, which could result in delayed filings with the SEC and the finding of a material or significant weakness, among others. This could result in harmful consequences to our business, including an adverse reaction in the financial markets due to a loss of confidence in the reliability of our consolidated financial statements. If we are unable to obtain and maintain patent and other intellectual property protection for any product candidates we develop and for our platform technologies, or if the scope of the patent and other intellectual property protection obtained is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize any product candidates we may develop, and our platform technologies may be adversely affected. Our commercial success will depend in large part on our ability to obtain and maintain patent, trademark, trade secret and other intellectual property protection of our base editing platform technology, product candidates and other technology, including delivery platform technology methods used to manufacture them and methods of treatment, as well as successfully defending our

patent and other intellectual property rights against third- party challenges. It is difficult and costly to protect our base editing platform technology and protect candidates, and we may not be able to ensure their protection. Our ability to stop unauthorized third parties from making, using, selling, offering to sell, importing or otherwise commercializing our product candidates we may develop is dependent upon the extent to which we have rights under valid and enforceable patents or trade secrets that cover these activities. We seek to protect our proprietary position by in- licensing intellectual property relating to our platform technology and filing patent applications in the United States and abroad related to our base editing platform technology, delivery platform technology and product candidates that are important to our business. If we or our licensors are unable to obtain or maintain patent protection with respect to our base editing platform technology, delivery platform technology and product candidates we may develop, or if the scope of the patent protection secured is not sufficiently broad, our competitors could develop and commercialize products and technology similar or identical to ours and our ability to commercialize any product candidates we may develop may be adversely affected. The patent prosecution process is expensive, time- consuming, and complex, and 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. In addition, we may not pursue or obtain patent protection in all relevant markets. It is also possible that we will fail to identify patentable aspects of our research and development output in time to obtain patent protection. Although we enter into non- disclosure and confidentiality agreements with parties who have access to confidential or patentable aspects of our research and development output, such as our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors, and other third parties, any of these parties may breach the agreements and disclose such output before a patent application is filed, thereby jeopardizing our ability to seek patent protection. In addition, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our inventions and the prior art allow our inventions to be patentable over the prior art. Furthermore, 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 be certain that we or our licensors were the first to make the inventions claimed in our owned or any licensed patents or pending patent applications, or that we or our licensors were the first to file for patent protection of such inventions. The patent position of biotechnology and pharmaceutical companies generally is highly uncertain, involves complex legal and factual questions, and has been the subject of much litigation in recent years. The field of gene editing, especially in the area of base editing technology, has been the subject of extensive patenting activity and litigation. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain, and we may become involved in complex and costly litigation. Our pending and future patent applications may not result in patents being issued which protect our base editing platform technology, delivery platform technology and product candidates we may develop, or which effectively prevent others from commercializing competitive technologies and product candidates. No consistent policy regarding the scope of claims allowable in the field of gene editing, including base editing technology, has emerged in the United States. The scope of patent protection outside of the United States is also uncertain. Changes in either the patent laws or their interpretation in the United States and other countries may diminish our ability to protect our inventions, obtain, maintain, enforce and defend our intellectual property rights and, more generally, could affect the value of our intellectual property or narrow the scope of our owned and licensed patent rights. With respect to both in- licensed and owned intellectual property, we cannot predict whether the patent applications we and our licensors are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will be valid and enforceable and provide sufficient protection from competitors. Moreover, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Even if patent applications we license or own currently or in the future issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us, or otherwise provide us with any competitive advantage. Any patents that we own, or in-license, may be challenged, narrowed, circumvented, or invalidated by third parties. Consequently, we do not know whether any of our platform advances and product candidates we may develop will be protectable or remain protected by valid and enforceable patents. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non- infringing manner. In addition, given the amount of time required for the development, testing, and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. As a result, our intellectual property may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours. Moreover, some of our owned and in-licensed patents and patent applications are, and may in the future be, co- owned by us with third parties. For example, a patent application directed to our potential HBG1 and HBG2 product candidates is co- owned by us, the President and Fellows of Harvard College, or Harvard, and Broad Institute. At present, we do not have a license to the ownership interest of Harvard or Broad Institute. If we are unable to obtain an exclusive license to such third- party co- owners' interest in such patents or patent applications, such co- owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we may need the cooperation of any such co- owners of our patents in order to enforce such patents against third parties, and such cooperation may not be provided to us. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects. Our rights to develop and commercialize our base editing platform technology and product candidates are subject, in part, to the terms and conditions of licenses granted to us by others. We depend on intellectual property licensed from third parties, and our licensors may not always act in our best interest. If we fail to comply with our obligations under our intellectual property licenses, if the licenses are terminated, or if disputes regarding these licenses arise, we could lose significant rights that are important to our business. We have licensed and are dependent on certain patent rights and proprietary technology from third parties that are important or necessary to the development of our base editing technology and product candidates. For example,

we are a party to license agreements with Broad Institute, Editas, Harvard, and Bio Palette, and others, pursuant to which we in-license key patents and patent applications for our base editing platform technology and product candidates (the Broad License Agreement, the Editas License Agreement, the Harvard License Agreement and the Bio Palette License Agreement, respectively). These license agreements impose various diligence, milestone payment, royalty, insurance, and other obligations on us. If we fail to comply with these obligations, our licensors may have the right to terminate our license, in which event we would not be able to develop or market our base editing platform or any other technology or product candidates covered by the intellectual property licensed under these agreements. For example, under the Harvard License Agreement, we are required to meet certain development milestones for the development of a licensed product covered by certain sub- categories of licensed patents. If we fail to meet such milestones, our rights with respect to the sub- category of licensed patents will terminate. These and other licenses may not provide exclusive rights to use such intellectual property and technology in all relevant fields of use and in all territories in which we may wish to develop or commercialize our base editing platform technology and product candidates in the future. Some licenses granted to us are expressly subject to certain preexisting rights held by the licensor or certain third parties. As a result, we may not be able to prevent competitors from developing and commercializing competitive products in certain territories or fields. For example, certain licensed patents developed by employees of the Howard Hughes Medical Institute, or HHMI, and subsequently assigned to Harvard and licensed to us under the Harvard License Agreement remain subject to a non- exclusive license between Harvard and HHMI. The Editas License Agreement provides that our field of use excludes the use of certain gene editing technologies for the diagnosis, treatment, and prevention of human cancers through certain engineered T- cells, which are licensed to Juno Therapeutics, Inc. (a subsidiary of Bristol- Myers Squibb Company). If we determine that rights to such excluded field are necessary to commercialize any of our product candidates or maintain our competitive advantage, we may need to obtain a license from such third party in order to continue developing, manufacturing or marketing our product candidates. We may not be able to obtain such a license on an exclusive basis, on commercially reasonable terms, or at all, which could prevent us from commercializing our product candidates or allow our competitors or others the chance to access technology that is important to our business. Under the Broad License Agreement, rights granted to us include certain patent applications directed to Cas12b or Cas13 that are limited to the United States. The co- owners of these patent applications include Broad Institute, Harvard, MIT, the State University of New Jersey, or Rutgers, Skolkovo Institute of Science and Technology, or Skoltech, and the NIH. At present, we do not have a license to the ownership interest of ~~Rutgers,~~ Skoltech ~~, or the NIH~~ . If we are unable to obtain an exclusive license to ~~Rutgers,~~ Skoltech ~~, and the NIH~~ ' s , interest in such patent applications, ~~Rutgers,~~ Skoltech ~~, and the NIH~~ may be able to license its rights to other third parties, including our competitors, and such third parties could market competing products and technology. In addition, we may need the cooperation of ~~Rutgers,~~ Skoltech ~~, or the NIH~~ in order to enforce patents issuing from these patent applications against third parties, and such cooperation may not be provided to us. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects. In addition, pursuant to our license agreement with Broad Institute and our license agreement with Harvard, under certain specific circumstances (in each case), Broad Institute or Harvard (as applicable) may grant a license to the patents that are the subject of such license agreement to a third party in the same field as such patents are licensed to us. Such third party may then have full rights that are the subject of the Broad License Agreement or the Harvard License Agreement (as applicable), which could impact our competitive position and enable a third party to commercialize products similar to our potential future product candidates and technology. Any grant of rights to a third party in this scenario would narrow the scope of our exclusive rights to the patents and patent applications we have in- licensed from Broad Institute and / or Harvard, as applicable. We do not have complete control in the preparation, filing, prosecution, maintenance, enforcement, and defense of patents and patent applications covering the technology that we license from third parties. For example, pursuant to each of our intellectual property licenses with Broad Institute, Harvard, Editas and Bio Palette, our licensors retain control of preparation, filing, prosecution, and maintenance, and, in certain circumstances, enforcement and defense of their patents and patent applications. It is possible that our licensors' enforcement of patents against infringers or defense of such patents against challenges of validity or claims of enforceability may be less vigorous than if we had conducted them ourselves, or may not be conducted in accordance with our best interests. We cannot be certain that these patents and patent applications will be prepared, filed, prosecuted, maintained, enforced, and defended in a manner consistent with the best interests of our business. If our licensors fail to prosecute, maintain, enforce, and defend such patents, or lose rights to those patents or patent applications, the rights we have licensed may be reduced or eliminated, our right to develop and commercialize any of our product candidates we may develop that are the subject of such licensed rights could be adversely affected and we may not be able to prevent competitors from making, using, and selling competing products. Our licensors may have relied on third- party consultants or collaborators or on funds from third parties such that our licensors are not the sole and exclusive owners of the patents we in- licensed. If other third parties have ownership rights to our in- licensed patents, the license granted to us in jurisdictions where the consent of a co- owner is necessary to grant such a license may not be valid and such co- owners may be able to license such patents to our competitors, and our competitors could market competing products and technology. In addition, our rights to our in- licensed patents and patent applications are dependent, in part, on inter- institutional or other operating agreements between the joint owners of such in- licensed patents and patent applications. If one or more of such joint owners breaches such inter- institutional or operating agreements, our rights to such in- licensed patents and patent applications may be adversely affected. Any of these events could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects. Furthermore, inventions contained within some of our in- licensed patents and patent applications were made using U. S. government funding. We rely on our licensors to ensure compliance with applicable obligations arising from such funding, such as timely reporting, an obligation associated with our in- licensed patents and patent applications. The failure of our licensors to meet their obligations may lead to a loss of rights or the unenforceability of relevant patents. For example, the U. S. government could have certain rights in such in- licensed patents, including a non-

exclusive license authorizing the U. S. government to use the invention or to have others use the invention on its behalf. If the U. S. government decides to exercise these rights, it is not required to engage us as its contractor in connection with doing so. The U. S. government' s rights may also permit it to disclose the funded inventions and technology to third parties and to exercise march- in rights to use or allow third parties to use the technology we have licensed that was developed using U. S. government funding. The U. S. government may also exercise its march- in rights if it determines that action is necessary because we or our licensors failed to achieve practical application of the U. S. government- funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U. S. industry. In addition, our rights in such in- licensed U. S. government- funded inventions may be subject to certain requirements to manufacture product candidates embodying such inventions in the United States. Any of the foregoing could harm our business, financial condition, results of operations, and prospects significantly. In the event any of our third- party licensors determine that, in spite of our efforts, we have materially breached a license agreement or have failed to meet certain obligations thereunder, it may elect to terminate the applicable license agreement or, in some cases, one or more licenses under the applicable license agreement and such termination would result in us no longer having the ability to develop and commercialize product candidates and technology covered by that license agreement or license. In the event of such termination of a third- party in- license, or if the underlying patents under a third- party in- license fail to provide the intended exclusivity, competitors would have the freedom to seek regulatory approval of, and to market, products identical to ours. Any of these events could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects. Our owned and in- licensed patents and patent applications may not provide sufficient protection of our platform technologies, our product candidates and our future product candidates or result in any competitive advantage. We have in- licensed a number of issued U. S. patents and patent applications that cover base editing and gene targeting technologies, as well as our delivery platform technology. We have applied for provisional patent applications or Patent Cooperation Treaty, or PCT, applications intended to specifically cover our base editing platform technology and uses with respect to treatment of particular diseases and conditions, and currently own three issued U. S. patents. We have applied for provisional patent applications or PCT applications intended to specifically cover our delivery platform technology but do not currently own any issued U. S. patents. Each U. S. provisional patent application is not eligible to become an issued patent until, among other things, we file a non- provisional patent application within 12 months of the filing date of the applicable provisional patent application. Any failure to file a non- provisional patent application within this timeline could cause us to lose the ability to obtain patent protection for the intentions disclosed in the associated provisional patent applications. We cannot be certain that any of these patent applications will issue as patents, and if they do, that such patents will cover or adequately protect our base editing platform technology, delivery platform technology or our product candidates, or that such patents will not be challenged, narrowed, circumvented, invalidated or held unenforceable. Any failure to obtain or maintain patent protection with respect to our base editing platform technology, delivery platform technology and product candidates could have a material adverse effect on our business, financial condition, results of operations and growth prospects. Our owned patents and patent applications and our in- licensed patents and patent applications contain claims directed to compositions of matter on our base editing product candidates, as well as methods directed to the use of such product candidates for gene therapy treatment. Method- of- use patents do not prevent a competitor or other third party from developing or marketing an identical product for an indication that is outside the scope of the patented method. Moreover, with respect to method- of- use patents, even if competitors or other third parties do not actively promote their product for our targeted indications or uses for which we may obtain patents, providers may recommend that patients use these products off- label, or patients may do so themselves. The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications that we own, or in- license, may fail to result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries. For example, while our patent applications are pending, we may be subject to a third- party pre- issuance submission of prior art to the United States Patent and Trademark Office, or USPTO, or become involved in interference or derivation proceedings, or equivalent proceedings in foreign jurisdictions. Even if patents do successfully issue, third parties may challenge their inventorship, validity, enforceability or scope, including through opposition, revocation, reexamination, post- grant and inter partes review proceedings. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate or render unenforceable, our owned or in- licensed patent rights, allow third parties to commercialize our technology or product candidates and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third- party patent rights. Moreover, we, or one of our licensors, may have to participate in interference proceedings declared by the USPTO to determine priority of invention or in post- grant challenge proceedings, such as oppositions in a foreign patent office, that challenge our or our licensor' s priority of invention or other features of patentability with respect to our owned or in- licensed patents and patent applications. Such challenges may result in loss of patent rights, loss of exclusivity, or in patent claims being narrowed, invalidated, or held unenforceable, 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 product candidates. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from designing around our claims. If the breadth or strength of protection provided by the patents and patent applications we own or the patents and patent applications we in- license with respect to our base editing platform technology, delivery platform technology and product candidates is threatened, it could dissuade companies from collaborating with us to develop, and threaten our ability to commercialize, our product candidates. Further, if we encounter delays in development, testing, and regulatory review of new product candidates, the period of time during which we could market our product candidates under patent protection would be reduced. Given that patent applications in the United States and other countries are confidential for a period of time after filing, at any moment in time, we cannot be certain that we or our licensors were in the past or will be in the

future the first to file any patent application related to our base editing technology, delivery platform technology or product candidates. In addition, some patent applications in the United States may be maintained in secrecy until the patents are issued. As a result, there may be prior art of which we or our licensors are not aware that may affect the validity or enforceability of a patent claim, and we or our licensors may be subject to priority disputes. For our in- licensed patent portfolios, we rely on our licensors to determine inventorship, and obtain and file inventor assignments of priority applications before their conversion as PCT applications. A failure to do so in a timely fashion may give rise to a challenge to entitlement of priority for foreign applications nationalized from such PCT applications. For example, the European Patent Office, or the EPO, Opposition Division, or the EPO Opposition Division, has revoked our optioned Broad Institute patent European Patent No. EP2771468 following a third- party challenge to its priority rights. The patent was revoked due to loss of priority. We or our licensors are subject to and may in the future become a party to proceedings or priority disputes in Europe or other foreign jurisdictions. The loss of priority for, or the loss of, these European patents could have a material adverse effect on the conduct of our business. We may be required to disclaim part or all of the term of certain patents or patent applications. There may be prior art of which we are not aware that may affect the validity or enforceability of a patent claim. There also may be prior art of which we or our licensors are aware, but which we or our licensors do not believe affects the validity or enforceability of a claim, which may, nonetheless, ultimately be found to affect the validity or enforceability of a claim. No assurance can be given that, if challenged, our patents would be declared by a court, patent office or other governmental authority to be valid or enforceable or that even if found valid and enforceable, a competitor' s technology or product would be found by a court to infringe our patents. We may analyze patents or patent applications of our competitors that we believe are relevant to our activities, and consider that we are free to operate in relation to our product candidates, but our competitors may achieve issued claims, including in patents we consider to be unrelated, that block our efforts or potentially result in our product candidates or our activities infringing such claims. It is possible that our competitors may have filed, and may in the future file, patent applications covering our products or technology similar to ours. Those patent applications may have priority over our owned patent applications and in- licensed patent applications or patents, which could require us to obtain rights to issued patents covering such technologies. The possibility also exists that others will develop products that have the same effect as our product candidates on an independent basis that do not infringe our patents or other intellectual property rights, or will design around the claims of our patent applications or our in- licensed patents or patent applications that cover our product candidates. Likewise, our currently owned patents and patent applications, if issued as patents, and in- licensed patents and patent applications, if issued as patents, directed to our proprietary base editing technologies and our product candidates are expected to expire from 2034 through ~~2044~~ **2045**, without taking into account any possible patent term adjustments or extensions. Our owned or in- licensed patents may expire before, or soon after, our first product candidate achieves marketing approval in the United States or foreign jurisdictions. Additionally, no assurance can be given that the USPTO or relevant foreign patent offices will grant any of the pending patent applications we own or in- license currently or in the future. Upon the expiration of our current in- licensed patents, we may lose the right to exclude others from practicing these inventions. The expiration of these patents could also have a similar material adverse effect on our business, financial condition, results of operations and prospects. Our owned patents and patent applications and in- licensed patents and patent applications and other intellectual property may be subject to priority disputes or to inventorship disputes and similar proceedings. If we or our licensors are unsuccessful in any of these proceedings, we may be required to obtain licenses from third parties, which may not be available on commercially reasonable terms or at all, or to cease the development, manufacture, and commercialization of one or more of the product candidates we may develop, which could have a material adverse impact on our business. Although we have an option to exclusively license certain patents and patent applications directed to Cas9 and Cas12a from Editas, who in turn has licensed such patents from various academic institutions including Broad Institute, we do not currently have a license to such patents and patent applications. Certain of the U. S. patents and one U. S. patent application to which we hold an option are co- owned by Broad Institute and MIT, and in some cases co- owned by Broad Institute, MIT, and Harvard, which we refer to together as the Boston Licensing Parties, and were involved in U. S. interference No. 106, 048 with one U. S. patent application co- owned by the University of California, the University of Vienna, and Emmanuelle Charpentier, which we refer to together as the University of California. On September 10, 2018, the Court of Appeals for the Federal Circuit, or the CAFC, affirmed the Patent Trial and Appeal Board of the USPTO' s, or PTAB' s, holding that there was no interference- in- fact. An interference is a proceeding within the USPTO to determine priority of invention of the subject matter of patent claims filed by different parties. On June 24, 2019, the PTAB declared an interference (U. S. Interference No. 106, 115) between ten U. S. patent applications ((U. S. Serial Nos. 15 / 947, 680; 15 / 947, 700; 15 / 947, 718; 15 / 981, 807; 15 / 981, 808; 15 / 981, 809; 16 / 136, 159; 16 / 136, 165; 16 / 136, 168; and 16 / 136, 175) that are co- owned by the University of California, and 13 U. S. patents and one U. S. patent application (U. S. Patent Nos. 8, 697, 359; 8, 771, 945; 8, 795, 965; 8, 865, 406; 8, 871, 445; 8, 889, 356; 8, 895, 308; 8, 906, 616; 8, 932, 814; 8, 945, 839; 8, 993, 233; 8, 999, 641; and 9, 840, 713, and U. S. Serial No. 14 / 704, 551)) that are co- owned by the Boston Licensing Parties, which we have an option to under the Editas License Agreement. In the declared interference, the University of California has been designated as the junior party and the Boston Licensing Parties have been designated as the senior party. As a result of the declaration of interference, an adversarial proceeding in the USPTO before the PTAB has been initiated, which is declared to ultimately determine priority, specifically and which party was first to invent the claimed subject matter. An interference is typically divided into two phases. The first phase is referred to as the motions or preliminary motions phase while the second is referred to as the priority phase. In the first phase, each party may raise issues including but not limited to those relating to the patentability of a party' s claims based on prior art, written description, and enablement. A party also may seek an earlier priority benefit or may challenge whether the declaration of interference was proper in the first place. Priority, or a determination of who first invented the commonly claimed invention, is determined in the second phase of an interference. The ten University of California patent applications and the 13 U. S. patents and one U. S. patent application co- owned by the Boston Licensing Parties involved in U.

S. Interference No. 106, 115 generally relate to CRISPR / Cas9 systems or eukaryotic cells comprising CRISPR / Cas9 systems having fused or covalently linked RNA and the use thereof in eukaryotic cells. On February 28, 2022, the PTAB issued a decision that the Boston Licensing Parties have priority of invention over University of California with respect to a single RNA CRISPR- Cas9 system that functions in eukaryotic cells. This decision is being appealed. There can be no assurance that the U. S. interference will be resolved in favor of the Boston Licensing Parties on appeal. If the U. S. interference resolves in favor of University of California, or if the Boston Licensing Parties' patents and patent application are narrowed, invalidated, or held unenforceable, we may lose the ability to license the optioned patents and patent application and our ability to commercialize our product candidates may be adversely affected if we cannot obtain a license to relevant third party patents that cover our product candidates. 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 nonexclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. If we are unable to obtain a necessary license to a third- party patent on commercially reasonable terms, we may be unable to commercialize our base editing platform technology or product candidates or such commercialization efforts may be significantly delayed, which could in turn significantly harm our business. We or our licensors may be subject to similar interferences in the future with the same risks as described above. For example, on December 14, 2020, the PTAB declared an interference (U. S. Interference No. 106, 126) between 14 U. S. patents and two U. S. patent applications (U. S. Patent Nos. 8, 697, 359; 8, 771, 945; 8, 795, 965; 8, 865, 406; 8, 871, 445; 8, 889, 356; 8, 889, 418; 8, 895, 308; 8, 906, 616; 8, 932, 814; 8, 945, 839; 8, 993, 233; 8, 999, 641; and 9, 840, 713, and U. S. Serial Nos. 14 / 704, 551 and 15 / 330, 876) that are co- owned by the Boston Licensing Parties, which we have an option to under the Editas License Agreement, and one U. S. patent application (U. S. Serial Nos. 14 / 685, 510) that is owned by Toolgen, Inc, or Toolgen. In the declared interference, the Boston Licensing Parties have been designated as the junior party and Toolgen has been designated as the senior party. ~~In March 2021, the PTAB issued an order on preliminary motions, granting, in part, and denying, in part, certain motions proposed by the Boston Licensing Parties and Toolgen. An oral hearing in the priority phase of U. S. Interference No. 106, 126 was held on September 12, 2022.~~ On September 28, 2022, the PTAB ~~issued a decision on preliminary motions denying or dismissing certain motions proposed by the Boston Licensing Parties and Toolgen and~~ issued an order suspending proceedings in the priority phase of the interference. We cannot predict with any certainty when a decision will be made. The 14 U. S. patents and two U. S. patent applications co- owned by the Boston Licensing Parties involved in U. S. Interference No. 106, 126 generally relate to CRISPR / Cas9 systems or eukaryotic cells comprising CRISPR / Cas9 systems having fused or covalently linked RNA and the use thereof in eukaryotic cells. On June 21, 2021, the PTAB declared an interference (U. S. Interference No. 106, 133) between the same 14 U. S. patents and two U. S. patent applications (U. S. Patent Nos. 8, 697, 359; 8, 771, 945; 8, 795, 965; 8, 865, 406; 8, 871, 445; 8, 889, 356; 8, 889, 418; 8, 895, 308; 8, 906, 616; 8, 932, 814; 8, 945, 839; 8, 993, 233; 8, 999, 641; and 9, 840, 713, and U. S. Serial Nos. 14 / 704, 551 and 15 / 330, 876, co- owned by the Boston Licensing Parties) as named in the interference with Toolgen, and one U. S. patent application (U. S. Serial Nos. 15 / 456, 204) that is owned by Sigma- Aldrich Co., LLC, or Sigma- Aldrich. In the declared interference, the Boston Licensing Parties have been designated as the junior party and Sigma- Aldrich has been designated as the senior party. ~~In September 2021, the PTAB issued an order on preliminary motions, granting, deferring, dismissing, or denying, certain motions proposed by the Boston Licensing Parties and Sigma- Aldrich. An oral hearing in the priority phase of U. S. Interference No. 106, 133 was held on November 21, 2022.~~ On December 14, 2022, the PTAB ~~issued a decision on preliminary motions denying or dismissing certain motions proposed by the Boston Licensing Parties and Sigma- Aldrich and~~ issued an order suspending proceedings in the priority phase of the interference. We cannot predict with any certainty when a decision will be made. We or our licensors may also be subject to claims that former employees, collaborators, or other third parties have an interest in our owned patents or patent applications or in- licensed patents or patent applications or other intellectual property as an inventor or co- inventor. If we are unable to obtain an exclusive license to any such third- party co- owners' interest in such patents or patent applications, such co- owners may be able to license their rights to other third parties, including our competitors. In addition, we may need the cooperation of any such co- owners to enforce any patents that issue from such patent applications against third parties, and such cooperation may not be provided to us. If we or our licensors are unsuccessful in any interference proceedings or other priority, validity (including any patent oppositions), or inventorship disputes to which we or they are subject, we may lose valuable intellectual property rights through the loss of one or more of our owned, licensed, or optioned patents, or such patent claims may be narrowed, invalidated, or held unenforceable, or through loss of exclusive ownership of or the exclusive right to use our owned or in- licensed patents. In the event of loss of patent rights as a result of any of these disputes, we may be required to obtain and maintain licenses from third parties, including parties involved in any such interference proceedings or other priority or inventorship disputes. Such licenses may not be available on commercially reasonable terms or at all, or may be non- exclusive. If we are unable to obtain and maintain such licenses, we may need to cease the development, manufacture, and commercialization of one or more of the product candidates we may develop. The loss of exclusivity or the narrowing of our patent claims could limit our ability to stop others from using or commercializing similar or identical technology and product candidates. Even if we or our licensors are successful in an interference proceeding or other similar priority or inventorship disputes, it could result in substantial costs and be a distraction to management and other employees. Any of the foregoing could result in a material adverse effect on our business, financial condition, results of operations, or prospects. We have limited foreign intellectual property rights and may not be able to protect our intellectual property and proprietary rights throughout the world. We have limited intellectual property rights outside the United States. Filing, prosecuting, and defending patents on product candidates 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. In addition, the laws of foreign countries do not protect intellectual property rights to the same extent as federal and state laws of the United States. In addition, our intellectual property license agreements may not always

include worldwide rights. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using 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 their own products and, further, may export otherwise infringing products to territories where we have patent protection but where enforcement is not as strong as that in the United States. These products may compete with our product candidates and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets, and other intellectual property protection, particularly those relating to biotechnology and pharmaceutical products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products against third parties in violation of our intellectual property and proprietary rights generally. Proceedings to enforce our patents and intellectual property rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing, and could 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. Moreover, the initiation of proceedings by third parties to challenge the scope or validity of our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business. Accordingly, our efforts to enforce our intellectual property and proprietary rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license. Many countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or any of our licensors is forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations, and prospects may be adversely affected. If we fail to comply with our obligations in the agreements under which we license intellectual property rights from third parties or otherwise experience disruptions to our business relationships with our licensors, we could lose license rights that are important to our business. We have entered into license agreements with third parties and may need to obtain additional licenses from our existing licensors and others to advance our research or allow commercialization of product candidates we may develop. It is possible that we may be unable to obtain any additional licenses at a reasonable cost or on reasonable terms, if at all. In either event, we may be required to expend significant time and resources to redesign our technology, product candidates, or the methods for manufacturing them or to develop or license replacement technology, all of which may not be feasible on a technical or commercial basis. If we are unable to do so, we may be unable to develop or commercialize the affected product candidates, which could harm our business, financial condition, results of operations, and prospects significantly. We cannot provide any assurances that third- party patents do not exist which might be enforced against our current technology, including base editing technology, delivery platform technology, manufacturing methods, product candidates, or future methods or products resulting in either an injunction prohibiting our manufacture or future sales, or, with respect to our future sales, an obligation on our part to pay royalties and / or other forms of compensation to third parties, which could be significant. In each of our license agreements, we are generally responsible for bringing any actions against any third party for infringing on the patents we have licensed. Certain of our license agreements also require us to meet development thresholds to maintain the license, including establishing a set timeline for developing and commercializing products. In spite of our efforts, our licensors might conclude that we have materially breached our obligations under such license agreements and might therefore terminate the license agreements, thereby removing or limiting our ability to develop and commercialize products and technology covered by these license agreements. If these in-licenses are terminated, or if the underlying patents fail to provide the intended exclusivity, competitors or other third parties would have the freedom to seek regulatory approval of, and to market, products identical to ours and we may be required to cease our development and commercialization of or base editing platform technology, delivery platform technology or product candidates. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and growth prospects. Disputes may arise regarding intellectual property subject to a licensing agreement, including: • the scope of rights granted under the license agreement and other interpretation- related issues; • the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement; • the sublicensing of patent and other rights to third parties under our collaborative development relationships; • our diligence obligations under the license agreement with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates and what activities satisfy those diligence obligations; • the inventorship and 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. In addition, the agreements under which we currently license intellectual property or technology from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology or broaden what we believe to be the scope of the licensor' s rights to our intellectual property and technology, or increase what we believe to be our financial or other obligations under the relevant agreement, any of which could have a material adverse effect on our business, financial condition, results of operations, and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates. As a result, any termination of or disputes over our intellectual property licenses could result in the loss of our ability to develop and commercialize our base editing

platform, delivery platform, or other product candidates or we could lose other significant rights, any of which could have a material adverse effect on our business, financial conditions, results of operations, and prospects. It is also possible that a third party could be granted limited licenses to some of the same technology, in certain circumstances. We may not be successful in acquiring or in- licensing necessary rights to key technologies or any product candidates we may develop. We currently have rights to intellectual property, through licenses from third parties, to identify and develop product candidates, and we expect to seek to expand our product candidate pipeline in part by in- licensing the rights to key technologies. The future growth of our business will depend in part on our ability to in- license or otherwise acquire the rights to additional product candidates and technologies. Although we have succeeded in licensing technologies from third party licensors, including Harvard, Broad Institute, Editas, and Bio Palette in the past, we cannot assure you that we will be able to in- license or acquire the rights to any product candidates or technologies from third parties on acceptable terms or at all. For example, our agreements with certain of our third- party licensors provide that our field of use excludes particular fields, for example, the use of certain gene editing technologies for the diagnosis, treatment, and prevention of human cancers through certain engineered T- cells, which are licensed exclusively or non- exclusively to a third- party licensee. If we determine that rights to such fields are necessary to commercialize our drug candidates or maintain our competitive advantage, we may need to obtain a license from such third party in order to continue developing, manufacturing or marketing our drug candidates. We may not be able to obtain such a license on an exclusive basis, on commercially reasonable terms, or at all, which could prevent us from commercializing our drug candidates or allow our competitors or others the chance to access technology that is important to our business. Furthermore, there has been extensive patenting activity in the fields of gene editing and delivery technologies, and pharmaceutical companies, biotechnology companies, and academic institutions are competing with us or are expected to compete with us in the fields of gene editing and delivery technologies and filing patent applications potentially relevant to our business and we are aware of certain third- party patents, as well as patent applications that, if issued, may allow the third party to circumvent our patent rights. For example, we are aware of several third- party patents, and patent applications that, if issued, may be construed to cover our base editing technology, delivery technology and product candidates. In order to market our product candidates, we may find it necessary or prudent to obtain licenses from such third- party intellectual property holders. However, we may be unable to secure such licenses or otherwise acquire or in- license any compositions, methods of use, processes, or other intellectual property rights from third parties that we identify as necessary for product candidates we may develop and base editing and delivery technologies. We may also require licenses from third parties for additional non- base editing technologies, including additional delivery methods that we are evaluating for use with product candidates we are developing and may develop in the future. In addition, some of our owned patents and patent applications and in- licensed patents and patent applications are co- owned with third parties. With respect to any patents co- owned with third parties, we may require licenses to such co- owners' interest to such patents. If we are unable to obtain an exclusive license to any such third- party co- owners' interest in such patents or patent applications, such co- owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we may need the cooperation of any such co- owners of our patents in order to enforce such patents against third parties, and such cooperation may not be provided to us. Additionally, we may collaborate with academic institutions to accelerate our preclinical research or development under written agreements with these institutions. In certain cases, these institutions provide us with an option to negotiate a license to any of the institution' s rights in technology resulting from the collaboration. Even if we hold such an option, we may be unable to negotiate a license from the institution within the specified timeframe or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to others, potentially blocking our ability to pursue our program. In addition, the licensing or acquisition of third- party intellectual property rights is a highly competitive area, and a number of more established companies are also pursuing strategies to license or acquire third party intellectual property rights that we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to license or acquire third party intellectual property rights on terms that would allow us to make an appropriate return on our investment or at all. If we are unable to successfully obtain rights to required third party intellectual property rights or maintain the existing intellectual property rights we have, we may have to abandon development of the relevant program or product candidate, which could have a material adverse effect on our business, financial condition, results of operations, and prospects. The **intellectual property landscape around gene editing technology, including base editing and delivery technology, is highly dynamic, and third parties may initiate legal proceedings alleging that we are infringing, misappropriating, or otherwise violating their intellectual property rights, the outcome of which would be uncertain and may prevent, delay or otherwise interfere with our product discovery and development efforts. The** field of gene editing, especially in the area of base editing technology, is still in its infancy, and no base editing product candidates have reached the market. Due to the intense research and development that is taking place by several companies, including us and our competitors, in this field and in the field of delivery technology, the intellectual property landscape is evolving and in flux, and it may remain uncertain for the coming years. There may be significant intellectual property related litigation and proceedings relating to our owned and in- licensed, and other third party, intellectual property and proprietary rights in the future. Our commercial success depends upon our ability and the ability of our collaborators and licensors to develop, manufacture, market, and sell any product candidates that we may develop and use our proprietary technologies without infringing, misappropriating, or otherwise violating the intellectual property and proprietary rights of third parties. The biotechnology and pharmaceutical industries are characterized by extensive litigation regarding patents and other intellectual property rights as well as administrative proceedings for challenging patents, including interference, derivation, inter partes review, post grant review, and reexamination proceedings before the USPTO or oppositions and other comparable proceedings in foreign jurisdictions. We may be subject to and may in

the future become party to, or threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our base editing platform technology, delivery platform technology and any product candidates we may develop, including interference proceedings, post- grant review, inter partes review, and derivation proceedings before the USPTO and similar proceedings in foreign jurisdictions such as oppositions before the EPO. Numerous U. S. and foreign issued patents and pending patent applications that are owned by third parties exist in the fields in which we are developing our product candidates and they may assert infringement claims against us based on existing patents or patents that may be granted in the future, regardless of their merit. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our base editing platform technology, delivery platform technology and product candidates may give rise to claims of infringement of the patent rights of others. Moreover, it is not always clear to industry participants, including us, which patents cover various types of therapies, products or their methods of use or manufacture. We are aware of certain third- party patents and patent applications that, if issued, may be construed to cover our base editing technology, delivery technology and product candidates. There may also be third- party patents of which we are currently unaware with claims to technologies, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. Because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that our product candidates may infringe. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. Numerous third- party U. S. and foreign issued patents and pending patent applications exist in the fields in which we are developing product candidates. Our product candidates make use of CRISPR- based technology, which is a field that is highly active for patent filings. The extensive patent filings related to CRISPR and Cas make it difficult for us to assess the full extent of relevant patents and pending applications that may cover our base editing platform technology and product candidates 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 base editing platform technology and product candidates. For example, we are aware of a patent portfolio that is co- owned by the University of California, University of Vienna and Emmanuelle Charpentier, or the University of California Portfolio, which contains multiple patents and pending applications directed to gene editing. The University of California portfolio includes, for example, U. S. Patent Nos. 10, 266, 850; 10, 227, 611; 10, 000, 772; 10, 113, 167; 10, 301, 651; 10, 308, 961; 10, 337, 029; 10, 351, 878; 10, 407, 697; 10, 358, 659; 10, 358, 658; 10, 385, 360; 10, 400, 253; 10, 421, 980; 10, 415, 061; 10, 428, 352; 10, 443, 076; 10, 487, 341; 10, 513, 712; 10, 519, 467; 10, 526, 619; 10, 533, 190; 10, 550, 407; 10, 563, 227; 10, 570, 419; 10, 577, 631; 10, 597, 680; 10, 612, 045; 10, 626, 419; 10, 640, 791; 10, 669, 560; 10, 676, 759; 10, 752, 920; 10, 774, 344; 10, 793, 878; 10, 900, 054; 10, 982, 230; 10, 982, 231; 10, 988, 780; 10, 988, 782; 11, 001, 863; 11, 008, 589; 11, 008, 590; 11, 028, 412; 11, 186, 849; 11, 242, 543; 11, 274, 318; 11, 293, 034; 11, 332, 761; 11, 401, 532; 11, 473, 108; 11, 479, 794; 11, 549, 127; 11, 634, 730; 11, 674, 159; 11, 814, 645 **; 11, 970, 711; 12, 123, 015; 12, 180, 503; 12, 180, 504; 12, 215, 343** , which are expected to expire around March 2033, excluding any additional term for patent term adjustment, or PTA, or patent term extension, or PTE, and any disclaimed term for terminal disclaimers. The University of California portfolio also includes numerous additional pending patent applications. If these patent applications issue as patents, they are expected to expire around March 2033, excluding any PTA, PTE, and any disclaimed term for terminal disclaimers. As discussed above, certain applications in the University of California Portfolio are currently subject to U. S. Interference No. 106, 115 with certain U. S. patents and one U. S. patent application that are co- owned by the Boston Licensing Parties to which we have an option under the Editas License Agreement. Although we have an option to exclusively license certain patents and patent applications directed to Cas9 and Cas12a from Editas, who in turn has licensed such patents from various academic institutions including Broad Institute, we do not currently have a license to such patents and patent applications. Certain members of the University of California Portfolio **have been or** are being opposed in Europe by multiple parties. For example, ~~the EPO Opposition Division has initiated~~ **European Patent Nos. EP2, 800, 811 B1, and EP3, 241, 902 B1, and EP3, 401, 400 B1 have been opposed, and notices of** opposition ~~proceedings~~ **have been filed by several third parties** against European Patent ~~Nos.~~ **No** . ~~EP2~~ **EP3** , ~~800~~ **597** , ~~811~~ **749** B1, ~~and EP3, 241, 902 B1and EP3, 401, 400 B1,~~ which **patents** are estimated to expire in March 2033 (excluding any patent term adjustments or extensions). The opposition procedure before the EPO allows one or more third parties to challenge the validity of a granted European patent within nine months after grant date of the European patent. Opposition proceedings may involve issues including, but not limited to, priority, patentability of the claims involved, and procedural formalities related to the filing of the patent application. As a result of the opposition proceedings, the Opposition Division can revoke a patent, maintain the patent as granted, or maintain the patent in an amended form. ~~Most of the claims of European patent EP2, 800, 811 B1 were maintained without amendment by the Opposition Division, but this decision is being appealed.~~ In April 2021, the claims of European patent EP3, 241, 902 B1 were revoked in their entirety **by the Opposition Division** , and that decision ~~is~~ **was** not ~~being~~ appealed. In ~~February~~ **November** ~~2022~~ **2024** , ~~the claims of~~ European ~~patent~~ **patents EP2, 800, 811 B1 and** EP3, 401, 400 B1 were **revoked** ~~maintained in amended form~~ by the **Boards of Appeal of the European Patent Office. It is uncertain how** ~~Opposition~~ **oppositions** ~~Division~~ **filed against EP3** , ~~and~~ **597, 749 B1 will be resolved. If** this ~~decision~~ **patent** is ~~being appealed. If these patents are~~ maintained by the Opposition Division with claims similar to those that **were** ~~are currently~~ opposed, our ability to commercialize our product candidates may be adversely affected if we do not obtain a license to these patents. 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 nonexclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. If we are unable to obtain a necessary license to a third- party patent on commercially reasonable terms, we may be unable to commercialize our base editing platform technology or product candidates or such commercialization efforts may be significantly delayed, which could in turn significantly harm our business. Numerous other patents and patent applications have been filed by other third parties directed to gene editing, guide nucleic acids, PAM sequence variants, split inteins, Cas12b or gene editing in the context

of immune therapy or chimeric antigen receptors. Because of the large number of patents issued and patent applications filed in our field, third parties may allege they have patent rights encompassing our product candidates, technologies or methods. Third parties may assert that we are employing their proprietary technology without authorization and may file patent infringement claims or lawsuit against us, and if we are found to infringe such third- party patents, we may be required to pay damages, cease commercialization of the infringing technology, or obtain a license from such third parties, which may not be available on commercially reasonable terms or at all. Our ability to commercialize our product candidates in the United States and abroad may be adversely affected if we cannot obtain a license on commercially reasonable terms to relevant third- party patents that cover our product candidates, delivery platform technology or base editing platform technology. Even if we believe third- party intellectual property claims are without merit, there is no assurance that a court would find in our favor on questions of infringement, validity, enforceability, or priority. A court of competent jurisdiction could hold that these third- party patents are valid, enforceable, and infringed, which could materially and adversely affect our ability to commercialize any product candidates we may develop and any other product candidates or technologies covered by the asserted third- party patents. In order to successfully challenge the validity of any such U. S. patent in federal court, we would need to overcome a presumption of validity. As this burden is a high one requiring us to present clear and convincing evidence as to the invalidity of any such U. S. patent claim, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U. S. patent. If we are found to infringe a third party' s intellectual property rights, and we are unsuccessful in demonstrating that such patents are invalid or unenforceable, we could be required to obtain a license from such third party to continue developing, manufacturing, and marketing any product candidates we may develop and our technology. However, 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 and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. If we are unable to obtain a necessary license to a third- party patent on commercially reasonable terms, we may be unable to commercialize our base editing platform technology, delivery platform technology or product candidates or such commercialization efforts may be significantly delayed, which could in turn significantly harm our business. We also could be forced, including by court order, to cease developing, manufacturing, and commercializing the infringing technology or product candidates. 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 or other intellectual property right. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar material adverse effect on our business, financial condition, results of operations, and prospects. Defense of third- party claims of infringement of misappropriation, or violation of intellectual property rights involves substantial litigation expense and would be a substantial diversion of management and employee time and resources from our business. Some third parties may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations or could otherwise have a material adverse effect on our business, financial condition, results of operations and prospects. There could also be public announcements of the results of hearings, motions, or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Any of the foregoing events could have a material adverse effect on our business, financial condition, results of operations and prospects. We may become involved in lawsuits to protect or enforce our patents, future patents or the patents of our licensors, which could be expensive, time consuming, and unsuccessful and could result in a finding that such patents are unenforceable or invalid. Competitors may infringe our patents, future patents or the patents of our licensing partners, or we may be required to defend against claims of infringement. In addition, our patents, future patents or the patents of our licensing partners also are, and may in the future become, involved in inventorship, priority, validity or enforceability disputes. Countering or defending against such claims can be expensive and time consuming. In an infringement proceeding, a court may decide that a patent owned or in- licensed by us is invalid or unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our owned and in- licensed patents do not cover the technology in question. An adverse result in any litigation proceeding could put one or more of our owned or in- licensed patents at risk of being invalidated or interpreted narrowly. In patent litigation in the United States, defendant counterclaims alleging invalidity and / or unenforceability are commonplace, and there are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. These types of mechanisms include re- examination, post- grant review, inter partes review, interference proceedings, derivation proceedings, and equivalent proceedings in foreign jurisdictions (e. g., opposition proceedings). These types of proceedings could result in revocation or amendment to our patents such that they no longer cover our product candidates. The outcome for any particular patent following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we, our licensors, our patent counsel and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and / or unenforceability, or if we are otherwise unable to adequately protect our rights, we would lose at least part, and perhaps all, of the patent protection on our technology and / or product candidates. Defense of these types of claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. Conversely, we may choose to challenge the patentability of claims in a third party' s U. S. patent by requesting that the USPTO review the patent claims in re- examination, post- grant review, inter partes review, interference proceedings, derivation proceedings, and equivalent proceedings in foreign jurisdictions (e. g., opposition proceedings). We are currently challenging, and in the future may choose to challenge, third party patents in patent opposition proceedings in the EPO or another foreign patent office. Even if successful, the costs of these opposition proceedings could be substantial, and may consume our time or

other resources. If we fail to obtain a favorable result at the USPTO, EPO or other patent office then we may be exposed to litigation by a third party alleging that the patent may be infringed by our product candidates, base editing platform technology, delivery platform technology or other or proprietary technologies. For example, as discussed above, elements of the University of California patent portfolio are being opposed in Europe by multiple parties and we are participating in the opposition proceedings. The EPO Opposition Division, or the Opposition Division, has initiated opposition proceedings against European patents estimated to expire in March 2033 (excluding any patent term adjustments or extensions) and co- owned by the University of California. The opposition procedure before the EPO allows one or more third parties to challenge the validity of a granted European patent within nine months after grant date of the European patent. Opposition proceedings may involve issues including, but not limited to, priority, patentability of the claims involved, and procedural formalities related to the filing of the patent application. As a result of the opposition proceedings, the Opposition Division can revoke a patent, maintain the patent as granted, or maintain the patent in an amended form. It is uncertain when or in what manner the Opposition Division will act on the opposition proceedings of these European patents. If these patents are maintained by the Opposition Division with claims similar to those that are currently opposed, our ability to commercialize our product candidates may be adversely affected if we do not obtain a license to these patents. 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 nonexclusive, thereby giving our competitors and other third parties access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. If we are unable to obtain a necessary license to a third- party patent on commercially reasonable terms, we may be unable to commercialize our base editing platform technology, delivery platform technology or product candidates or such commercialization efforts may be significantly delayed, which could in turn significantly harm our business. Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses and could distract our personnel from their normal responsibilities. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions, or other interim proceedings or developments, and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing, or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment, and other requirements imposed by government patent agencies, and our patent protection could be reduced or eliminated for non- compliance with these requirements. Periodic maintenance fees, renewal fees, annuity fees, and various other government fees on patents and applications are due to be paid to the USPTO and foreign patent agencies outside of the United States over the lifetime of our owned or licensed patents and applications. In certain circumstances, we rely on our licensing partners to pay these fees due to U. S. and non- U. S. patent agencies. The USPTO and foreign patent agencies require compliance with several procedural, documentary, fee payment, and other similar provisions during the patent application process. We are also dependent on our licensors to take the necessary action to comply with these requirements with respect to our licensed intellectual property. While an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations, however, in which non- compliance can result a partial or complete loss of patent rights in the relevant jurisdiction. Were a noncompliance event to occur, our competitors might be able to enter the market with similar or identical products or technology, which could have a material adverse effect on our business, financial condition, results of operations, and prospects. Changes in patent law in the United States and in non- U. S. jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our platform technologies and product candidates. As is the case with other biotech and pharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involve both technological and legal complexity, and is therefore costly, time- consuming and inherently uncertain. Changes in either the patent laws or interpretation of the patent laws could increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of our issued patents. For example, in March 2013, under the Leahy- Smith America Invents Act, or the America Invents Act, the United States transitioned from a " first to invent " to a " first- to- file " patent system. Under a " first- to- file " system, assuming that other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to a patent on an invention regardless of whether another inventor had made the invention earlier. A third party that files a patent application in the USPTO after March 2013, but before us could therefore be awarded a patent covering an invention of ours even if we had made the invention before it was made by such third party. This will require us to be cognizant going forward of the time from invention to filing of a patent application. Since patent applications in the United States and most other countries are confidential for a period of time after filing or until issuance, we cannot be certain that we or our licensors were the first to either file any patent application related to our technology or product candidates or invent any of the inventions claimed in our or our licensor' s patents or patent applications. The America Invents Act also includes a number of other significant changes to U. S. patent law, including provisions that affect the way patent applications are prosecuted, allowing third party submission of prior art and establish a new post- grant review system including post- grant review, inter partes review, and derivation proceedings. Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in United States federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to

hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. The effects of some of these changes are currently unclear as the USPTO continues to promulgate new regulations and procedures in connection with the America Invents Act. In addition, the courts have yet to address many of these provisions and the applicability of the act and new regulations on the specific patents discussed in this filing have not been determined and would need to be reviewed. However, the America Invents Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. In addition, recent U. S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the validity and enforceability of patents, once obtained. Depending on future actions by the U. S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that could weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. For example, in the case, Assoc. for Molecular Pathology v. Myriad Genetics, Inc., the U. S. Supreme Court held that certain claims to DNA molecules are not patentable. We cannot predict how this and future decisions by the courts, the U. S. Congress or the USPTO may impact the value of our patents. Any similar adverse changes in the patent laws of other jurisdictions could also have a material adverse effect on our business, financial condition, results of operations and prospects. Patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time. Patents have a limited lifespan. The terms of individual patents depend upon the legal term for patents in the countries in which they are granted. In most countries, including the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest non- provisional filing date in the applicable country. However, the actual protection afforded by a patent varies from country to country, and depends upon many factors, including the type of patent, the scope of its coverage, the availability of regulatory- related extensions, the availability of legal remedies in a particular country and the validity and enforceability of the patent. Various extensions including PTE and PTA, may be available, but the life of a patent, and the protection it affords, is limited. Even if patents covering our product candidates are obtained, once the patent life has expired, we may be open to competition from competitive products, including generics. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting our product candidates might expire before or shortly after we or our partners commercialize those candidates. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours. If we do not obtain PTE and data exclusivity for any product candidates we may develop, our business may be materially harmed. Depending upon the timing, duration and specifics of any FDA marketing approval of any product candidates we may develop, one or more of our U. S. patents may be eligible for limited PTE under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch- Waxman Amendments. The Hatch- Waxman Amendments PTE term of up to five years as compensation for patent term lost during the FDA regulatory review process. A PTE cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent per product may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. However, even if we were to seek a PTE, it may not be granted because of, for example, the failure to exercise due diligence during the testing phase or regulatory review process, the failure to apply within applicable deadlines, the failure to apply prior to expiration of relevant patents, or any other failure to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain PTE or term of any such extension is less than we request, our competitors may obtain approval of competing products following our patent expiration, and our business, financial condition, results of operations, and prospects could be materially harmed. If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed. In addition to seeking patents for our technology and product candidates, we also rely on know- how and trade secret protection, as well as confidentiality agreements, non- disclosure agreements and invention assignment agreements with our employees, consultants and third parties, to protect our confidential and proprietary information, especially where we do not believe patent protection is appropriate or obtainable. It is our policy to require our employees, corporate collaborators, outside scientific collaborators, CROs, contract manufacturers, consultants, advisors, and other third parties 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 by 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 certain specified circumstances. In the case of employees, the agreements provide that all inventions conceived by the individual, and that are related to our current or planned business or research and development or made during normal working hours, on our premises or using our equipment or proprietary information, are our exclusive property. In the case of consultants and other third parties, the agreements provide that all inventions conceived in connection with the services provided are our exclusive property. However, we cannot guarantee that we have entered into such agreements with each party that may have or have had access to our trade secrets or proprietary technology and processes. Additionally, the assignment of intellectual property rights may not be self- executing, or the assignment agreements may be breached, and 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. Any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive, and time- consuming, and the outcome is unpredictable. In addition to contractual measures, we try to protect the confidential nature of our proprietary information

through other appropriate precautions, such as physical and technological security measures. However, trade secrets and know-how can be difficult to protect. These measures may not, for example, in the case of misappropriation of a trade secret by an employee or third party with authorized access, provide adequate protection for our proprietary information. Our security measures may not prevent an employee or consultant from misappropriating our trade secrets and providing them to a competitor, and any recourse we might take against this type of misconduct may not provide an adequate remedy to protect our interests fully. In addition, trade secrets may be independently developed by others in a manner that could prevent us from receiving legal recourse. If any of our confidential or proprietary information, such as our trade secrets, were to be disclosed or misappropriated, or if any of that information was independently developed by a competitor, our competitive position could be harmed. In addition, some courts inside and outside the United States are sometimes less willing or unwilling to protect trade secrets. If we choose to go to court to stop a third party from using any of our trade secrets, we may incur substantial costs. Even if we are successful, these types of lawsuits may consume our time and other resources. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects **. Third parties have asserted and may in the future assert that we, our employees, consultants, or advisors have wrongfully used or disclosed confidential information or misappropriated trade secrets** . As is common in the biotechnology and pharmaceutical industries, we employ individuals that are currently or were previously employed at universities, research institutions or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. In addition, we regularly enter into non- disclosure and confidentiality agreements to protect the proprietary positions of third parties, such as research institutions, outside scientific collaborators, CROs, third- party manufacturers, consultants, advisors, potential partners and other third parties in order to evaluate technology for potential development. Although we try to ensure that we and our employees, consultants, and advisors do not use the proprietary information or know- how of others, we have received and may in the future be subject to claims that we or these individuals have inadvertently or otherwise wrongfully used or disclosed intellectual property, including trade secrets or other proprietary information, of third parties, including any such individual' s current or former employer. Also, we have in the past and may in the future be subject to claims that these individuals are violating non-compete agreements with their former employers. We may then have to pursue litigation to defend against any of these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments, and, if securities analysts or investors perceive these results to be negative, that perception could have a substantial adverse effect on the price of our common stock. This type of litigation or proceeding could substantially increase our operating losses and reduce our resources available for development activities, and we may not have sufficient financial or other resources to adequately conduct this type of litigation or proceedings. For example, some of our competitors may be able to sustain the costs of this type of litigation or proceedings more effectively than we can because of their substantially greater financial resources. In any case, uncertainties resulting from the initiation and continuation of intellectual property litigation or other intellectual property related proceedings could adversely affect our ability to compete in the marketplace ~~. For example, we received correspondence from a research institution regarding a confidentiality agreement between such institution and us. The confidentiality agreement related to certain technology that we evaluated for development in connection with certain of our programs. The correspondence alleges that we breached the terms of the confidentiality agreement, misappropriated trade secret and other confidential information of such institution, engaged in unfair and deceptive trade practices, and were unjustly enriched in connection with developing our therapeutics, including BEAM- 302. The research institution claims that it is entitled to monetary damages (including damages for the apportioned value of our company and enhanced damages for an alleged willful violation) and certain ongoing royalty and / or milestone payments related to the technology that is the subject of the alleged breaches of contract, among other possible remedies. We have engaged in, and expect to continue to engage in, settlement negotiations with the research institution. We cannot predict whether we will be able to reach a settlement relating to such claims or whether we would prevail in any litigation or action related to them. Moreover, any litigation may result in negative publicity, regardless of its outcome, and may subject us to significant liability for monetary damages and have a material adverse effect on our business, financial position, and results of operations. For further information, see Note 6 of the notes to our consolidated financial statements included elsewhere in this Annual Report on Form 10- K~~ . If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected. Our registered or unregistered trademarks or trade names may be challenged, infringed, circumvented or declared generic or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names, which we need to build name recognition among potential partners or customers in our markets of interest. At times, competitors or other third parties 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. Our efforts to enforce or protect our proprietary rights related to trademarks, trade secrets, domain names, copyrights or other intellectual property may be ineffective and could result in substantial costs and diversion of resources and could adversely affect our business, financial condition, results of operations and growth prospects. Intellectual property rights do not necessarily address all potential threats. 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. For example: • any product candidates we may develop will eventually become commercially available in generic or biosimilar product forms; •

others may be able to make gene therapy products that are similar to any product candidates we may develop or utilize similar base editing technology but that are not covered by the claims of the patents that we license or may own in the future; • we, or our license partners or current or future collaborators, might not have been the first to make the inventions covered by the issued patent or pending patent application that we license or may own in the future; • we, or our license partners or current or future collaborators, might not have been the first to file patent applications covering certain of our or their inventions; • we, or our license partners or current or future collaborators, may fail to meet our obligations to the U. S. government regarding any in- licensed patents and patent applications funded by U. S. government grants, leading to the loss or unenforceability of patent rights; • others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our owned or licensed intellectual property rights; • it is possible that our pending, owned or licensed patent applications or those that we may own in the future will not lead to issued patents; • it is possible that there are prior public disclosures that could invalidate our owned or in- licensed patents, or parts of our owned or in- licensed patents; • it is possible that there are unpublished applications or patent applications maintained in secrecy that may later issue with claims covering our product candidates or technology similar to ours; • it is possible that our owned or in- licensed patents or patent applications omit individual (s) that should be listed as inventor (s) or include individual (s) that should not be listed as inventor (s), which may cause these patents or patents issuing from these patent applications to be held invalid or unenforceable; • issued patents that we hold rights to may be held invalid, unenforceable, or narrowed in scope, including as a result of legal challenges by our competitors; • the claims of our owned or in- licensed issued patents or patent applications, if and when issued, may not cover our product candidates; • the laws of foreign countries may not protect our proprietary rights or the proprietary rights of license partners or current or future collaborators to the same extent as the laws of the United States; • the inventors of our owned or in- licensed patents or patent applications may become involved with competitors, develop products or processes that design around our patents, or become hostile to us or the patents or patent applications on which they are named as inventors; • our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets; • we have engaged in scientific collaborations in the past and will continue to do so in the future and our collaborators may develop adjacent or competing products that are outside the scope of our patents; • we may not develop additional proprietary technologies that are patentable; • any product candidates we develop may be covered by third parties' patents or other exclusive rights; • the patents of others may harm our business; or • we may choose not to file a patent in order to maintain certain trade secrets or know- how, and a third party may subsequently file a patent covering such intellectual property. Should any of these events occur, they could have a material adverse effect on our business, financial condition, results of operations, and prospects. If approved, our product candidates that are licensed and regulated as biologics may face competition from biosimilars approved through an abbreviated regulatory pathway. The Biologics Price Competition and Innovation Act of 2009, or BPCIA, was enacted as part of the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act, or collectively, the ACA, to establish an abbreviated pathway for the approval of biosimilar and interchangeable biological products. The regulatory pathway establishes legal authority for the FDA to review and approve biosimilar biologics, including the possible designation of a biosimilar as " interchangeable " based on its similarity to an approved biologic. Under the BPCIA, a reference biological product is granted 12 years of data exclusivity from the time of first licensure of the product, and the 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. In addition, the licensure of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12- year period of exclusivity, another company may still develop and receive approval of a competing biologic, so long as its BLA does not reply on the reference product, sponsor' s data or submit the application as a biosimilar application. ~~BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products.~~ In December 2022,Congress clarified through FDORA that the FDA may approve multiple first interchangeable biosimilar biological products so long as the products are all approved on the first day on which such a product is approved as interchangeable with the reference product **and the exclusivity period may be shared amongst multiple first interchangeable products** . ~~The~~ **There** ~~law also includes an extensive process for~~ **have been recent government proposals to reduce** the ~~innovator biologic and biosimilar manufacturer~~ **12- year reference product exclusivity period,but none has been enacted** to ~~litigate patent infringement~~ **date.At the same time** , ~~validity,and enforceability prior to the approval of the biosimilar.Since~~ **since** ~~the~~ passage of the BPCIA,many states have passed laws **,** or amendments to laws, **which address** ~~including laws governing~~ pharmacy practices ~~,~~ **involving biosimilar products.** We believe that any of the product candidates we develop as a biological product under a BLA should qualify for the 12- year period of exclusivity. However, there is a risk that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider the subject product candidates to be reference products for competing products, potentially creating the opportunity for biosimilar competition sooner than anticipated. Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of the reference products in a way that is similar to traditional generic substitution for non- biological products will depend on a number of marketplace and regulatory factors that are still developing. Nonetheless, the approval of a biosimilar to our product candidates may have a material adverse impact on our business due to increased competition and pricing pressure. Risks related to regulatory and other legal compliance matters **Regulatory requirements governing genetic medicines, and in particular any novel genetic medicines we may develop, have changed frequently and may continue to change in the future.** Regulatory requirements governing genetic and cellular medicines, and in particular any novel genetic medicine products we may develop, have changed frequently and may continue to change in the future. We are aware of a limited number of genetic medicines that have received marketing authorization from the FDA and EMA. Even with respect to more established products in the genetic medicine field, the regulatory landscape is still developing. For example, the FDA has established the Office of Tissues and Advanced Therapies (formerly the Office of Cellular, Tissue and Gene Therapies) within

CBER to consolidate the review of genetic medicines and related products, and the Cellular, Tissue and Gene Therapies Advisory Committee to advise CBER on its review. Genetic medicine clinical trials conducted at institutions that receive funding for recombinant DNA research from the NIH also are potentially subject to review by the Office of Biotechnology Activities' Recombinant DNA Advisory Committee, or the RAC; however, the NIH announced that the RAC will only publicly review clinical trials if the trials cannot be evaluated by standard oversight bodies and pose unusual risks. The same applies in the European Union, or EU. The EMA' s Committee for Advanced Therapies, or CAT, is responsible for assessing the quality, safety **, purity** and ~~efficacy~~ **potency** of advanced- therapy medicinal products. The role of the CAT is to prepare a draft opinion on an application for marketing authorization for a genetic medicinal candidate that is submitted to the CHMP before CHMP adopts its final opinion. In the EU, the development and evaluation of a genetic medicinal product must be considered in the context of the relevant EU guidelines. The EMA may issue new guidelines concerning the development and marketing authorization for genetic medicinal products and require that we comply with these new guidelines. As a result, the procedures and standards applied to genetic medicines and cell therapy products may be applied to any product candidates we may develop, but that remains uncertain at this point. These regulatory review committees and advisory groups and the new guidelines they promulgate may lengthen the regulatory review process, require us to perform additional studies, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of any product candidates we may develop or lead to significant post- approval limitations or restrictions. As we advance any product candidates we may develop, we will be required to consult with these regulatory and advisory groups and comply with applicable guidelines. If we fail to do so, we may be required to delay or discontinue development of these product candidates. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product to market could decrease our ability to generate sufficient product revenue to maintain our business. Although the FDA decides whether individual genetic medicine protocols may proceed, the RAC public review process, if undertaken, can delay the initiation of a clinical trial, even if the FDA has reviewed the trial design and details and approved its initiation. Conversely, the FDA can put an IND on a clinical hold even if the RAC has provided a favorable review or an exemption from in- depth, public review. If we were to engage an NIH- funded institution to conduct a clinical trial, that institution' s IBC as well as its IRB would need to review the proposed clinical trial to assess the safety of the trial. In addition, adverse developments in clinical trials of genetic medicine products conducted by others may cause the FDA or other oversight bodies to change the requirements for approval of any product candidates we may develop. Similarly, the EMA may issue new guidelines concerning the development and marketing authorization for genetic medicine products and require that we comply with these new guidelines. As we are initially seeking to identify and develop product candidates to treat diseases using novel technologies, there is heightened risk that the FDA, the EMA or other regulatory authority may not consider the clinical trial endpoints that we propose to provide clinically meaningful results. Even if the endpoints are deemed clinically meaningful, we may not achieve these endpoints to a degree of statistical significance, particularly because many of the diseases we are targeting with our platform, including T- cell acute lymphoblastic leukemia, glycogen storage disorder and Stargardt disease, have small patient populations, making development of large and rigorous clinical trials more difficult. Further, 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 EU 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 gene editing therapeutic product has been approved in the United States or in Europe, and only a limited number of gene therapy products have received marketing authorization or marketing approval from the European Commission or the FDA. Some of these products have taken years to register and have had to address significant issues in their post- marketing experience. Adverse developments in post- marketing experience or in clinical trials conducted by others of genetic medicines or cell therapy products may cause the FDA, the EMA, and other regulatory bodies to revise the requirements for development or approval of any product candidates we may develop or limit the use of products utilizing non- viral genetic medicinal 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 **, purity** and ~~efficacy~~ **potency** 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 such as the product candidates we may develop 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 non- viral genetic medicine 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. In addition, ethical, social and legal concerns about genetic medicine, genetic testing and genetic research could result in additional regulations or prohibiting the processes we may use. Federal and state agencies, congressional committees and foreign governments have expressed their intentions to further regulate biotechnology. More restrictive regulations or claims that any product candidates we may develop are unsafe or pose a hazard could prevent us from commercializing any products. New government requirements may be established that could delay or prevent regulatory approval of any product candidates we may develop under development. It is impossible to predict whether legislative changes will be enacted, regulations, policies or guidance changed, or interpretations by agencies or courts changed, or what the impact of such changes, if any, may be. As we advance any product candidates we develop through clinical development, we will be required to consult with these regulatory and advisory groups, and comply with applicable guidelines. These regulatory review committees and advisory groups and any new

guidelines they promulgate may lengthen the regulatory review process, require us to perform additional studies, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of any product candidates we may develop or lead to significant post- approval limitations or restrictions. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring a potential product to market could decrease our ability to generate sufficient product revenue. Even if we complete the necessary preclinical studies and clinical trials, the marketing approval process is expensive, time- consuming, and uncertain and may prevent us from obtaining approvals for the commercialization of any product candidates we may develop. If we are not able to obtain, or if there are delays in obtaining, required regulatory approvals, we will not be able to commercialize, or will be delayed in commercializing, product candidates we may develop, and our ability to generate revenue will be materially impaired. Any product candidates we may develop and the activities associated with their development and commercialization, including their design, testing, manufacture, recordkeeping, labeling, storage, approval, advertising, promotion, sale, import, export, and distribution, are subject to comprehensive regulation by the FDA, the EMA and other regulatory authorities in the United States and by comparable authorities in other countries. Failure to obtain marketing approval for a product candidate will prevent us from commercializing the product candidate in a given jurisdiction. We have not received approval to market any product candidates from regulatory authorities in any jurisdiction. We have only limited experience in filing and supporting the applications necessary to gain marketing approvals and expect to rely on third parties to assist us in this process. Securing regulatory approval requires the submission of extensive preclinical and clinical data and supporting information to the various regulatory authorities for each therapeutic indication to establish the biological product candidate' s safety, purity, and potency. Securing regulatory approval also requires the submission of extensive information about the product manufacturing process, and inspection of manufacturing facilities by, the relevant regulatory authority. Any product candidates we develop may not be effective, may be only moderately effective, or may prove to have undesirable or unintended side effects, toxicities, or other characteristics that may preclude our obtaining marketing approval or prevent or limit commercial use. The process of obtaining marketing approvals, both in the United States and abroad, is expensive, may take many years if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity, and novelty of the product candidates involved. Changes in marketing approval policies during the development period, changes in or the enactment of additional statutes or regulations, or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. The FDA and comparable authorities in other countries have substantial discretion in the approval process and may refuse to accept any application or may decide that our data is insufficient for approval and require additional preclinical, clinical, or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit, or prevent marketing approval of a product candidate. Any marketing approval we ultimately obtain may be limited or subject to restrictions or post- approval commitments that render the approved medicine not commercially viable. **Moreover, principal investigators for our future clinical trials may serve as scientific advisors or consultants to us and receive compensation in connection with such services. Under certain circumstances, we may be required to report some of these relationships to the FDA or comparable foreign regulatory authorities. The FDA or a comparable foreign regulatory authority may conclude that a financial relationship between us and a principal investigator has created a conflict of interest or otherwise affected interpretation of the study. The FDA or comparable foreign regulatory authority may therefore question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized. This could result in a delay in approval, or rejection, of our marketing applications by the FDA or comparable foreign regulatory authority, as the case may be, and may ultimately lead to the denial of marketing approval of one or more of our product candidates.** Further, under the Pediatric Research Equity Act, or PREA, a BLA or supplement to a BLA for certain biological products must contain data to assess the safety and effectiveness of the biological product in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective, unless the sponsor receives a deferral or waiver from the FDA. A deferral may be granted for several reasons, including a finding that the product or therapeutic candidate is ready for approval for use in adults before pediatric trials are complete or that additional safety or effectiveness data needs to be collected before the pediatric trials begin. The applicable legislation in the EU also requires sponsors to either conduct clinical trials in a pediatric population in accordance with a Pediatric Investigation Plan approved by the Pediatric Committee of the EMA or to obtain a waiver or deferral from the conduct of these studies by this Pediatric Committee. For any of our product candidates for which we are seeking regulatory approval in the U. S. or the EU, we cannot guarantee that we will be able to obtain a waiver or alternatively complete any required studies and other requirements in a timely manner, or at all, which could result in associated reputational harm and subject us to enforcement action ~~delays and other impacts,any of which could adversely impact our business and operations.Further,our~~ ability to develop and market new drug products may be impacted by **ongoing** litigation challenging the FDA' s approval of **mifepristone** ~~another company' s drug product~~ . ~~In~~ **Specifically,on** April **7,** 2023,the U.S.District Court for the Northern District of Texas ~~invalidated~~ **stayed** the approval by the FDA of mifepristone,a drug product which was originally approved in 2000 and whose distribution is governed by various ~~measures~~ **conditions** adopted under a REMS. ~~The~~ **In reaching that decision,the district** ~~Court~~ **court made a number** of ~~Appeals for~~ **findings that may negatively impact** the ~~Fifth Circuit declined to order~~ **development,approval and distribution of drug products in** the ~~removal of mifepristone~~ **U.S.Among other** . If we experience delays in obtaining approval or if we fail to obtain approval of any product candidates we may develop, the commercial prospects for those product candidates may be harmed, and our ability to generate revenues will be materially impaired. Failure to obtain marketing approval in foreign jurisdictions would prevent any product candidates we may develop from being marketed in such jurisdictions, which, in turn, would materially impair our ability to generate revenue. In order to market and sell any product candidates we may develop in the EU and other foreign jurisdictions, we or our third- party collaborators must obtain separate marketing approvals (a single one for the EU) and comply with numerous and varying

regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The regulatory approval process outside the United States generally includes all of the risks associated with obtaining FDA approval. In addition, in many countries outside the United States, it is required that the product candidate be approved for reimbursement before the product candidate can be approved for sale in that country. We or these third parties may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. We may not be able to file for marketing approvals and may not receive necessary approvals to commercialize our medicines in any jurisdiction, which would materially impair our ability to generate revenue. Additionally, we could face heightened risks with respect to obtaining marketing authorization in the U. K. as a result of the withdrawal of the U. K. from the EU, commonly referred to as Brexit. The U. K. is no longer part of the European Single Market and EU Customs Union. As of January 1, ~~2021~~ **2025** , the Medicines and Healthcare ~~products~~ **Products** Regulatory Agency, or MHRA, ~~became responsible for supervising medicines and medical devices in Great Britain, or GB, comprising England, Scotland and Wales under domestic law, whereas under the terms of the Northern Ireland Protocol, Northern Ireland~~ is ~~currently subject to EU rules. The U. K. and EU have however agreed to the Windsor Framework which fundamentally changes the existing system under the Northern Ireland Protocol, including with respect to the regulation of medicinal products in the U. K. Once implemented, the changes introduced by the Windsor Framework will see the MHRA be~~ responsible for approving all medicinal products destined for the U. K. market (i. e., **Great Britain, or** GB **,** and Northern Ireland) **. At the same time** , **a new international recognition procedure, or IRP, will apply, which intends to facilitate approval of pharmaceutical products in the U. K. The IRP is open to applicants that have already received** ~~and~~ **an authorization for the same product from one of the MHRA' s specified Reference Regulators, or RRs. The RRs notably include** the EMA **and regulators** ~~will no longer have any role~~ in ~~approving medicinal products destined~~ **the EU / European Economic Area, or EEA, member states** for ~~Northern Ireland~~ **approvals in the EU centralized procedure and mutual recognition procedure, as well as the FDA for product approvals granted in the U. S. However, the concrete functioning of the IRP is currently unclear** . Any delay in obtaining, or an inability to obtain, any marketing **approvals** ~~authorizations, as a result of Brexit or otherwise,~~ may force us to restrict or delay efforts to seek regulatory approval in the U. K. for our product candidates, which could significantly and materially harm our business. In addition, foreign regulatory authorities may change their approval policies and new regulations may be enacted. For instance, the EU pharmaceutical legislation is currently undergoing a complete review process, in the context of the Pharmaceutical Strategy for Europe initiative, launched by the European Commission in November 2020. The European Commission' s proposal for revision of several legislative instruments related to medicinal products (potentially reducing the duration of regulatory data protection, revising the eligibility for expedited pathways, etc.) was published on April 26, 2023. The proposed revisions remain to be agreed and adopted by the European Parliament and European Council and the proposals may therefore be substantially revised before adoption, which is not anticipated before early 2026. The revisions may, however, have a significant impact on the pharmaceutical industry and our business in the long term. Any regulatory approval to market our products will be limited by indication. If we fail to comply or are found to be in violation of FDA regulations restricting the promotion of our products for unapproved uses, we could be subject to criminal penalties, substantial fines or other sanctions and damage awards. The regulations relating to the promotion of products for unapproved uses are complex and subject to substantial interpretation by the FDA, EMA, MHRA and other government agencies. In September 2021, the FDA published final regulations which describe the types of evidence that the agency will consider in determining the intended use of a drug product. Physicians may nevertheless prescribe our products off-label to their patients in a manner that is inconsistent with the approved label. We intend to implement compliance and training programs designed to ensure that any of our sales and marketing practices comply with applicable regulations. Notwithstanding these programs, the FDA or other government agencies may allege or find that our practices constitute prohibited promotion of our products for unapproved uses. We also cannot be sure that our employees will comply with company policies and applicable regulations regarding the promotion of products for unapproved uses. Notwithstanding the regulatory restrictions on off- label promotion, the FDA and other regulatory authorities allow companies to engage in truthful, non- misleading, and non-promotional scientific communications concerning their products in certain circumstances. For example, in ~~October~~ **January** ~~2023~~ **2025** , the FDA published ~~draft~~ **final** guidance outlining **its** ~~the agency' s~~ non- binding policies governing the distribution of scientific information on unapproved uses to healthcare providers. This ~~draft~~ **final** guidance calls for such communications to be truthful, non- misleading, factual, and unbiased and include all information necessary for healthcare providers to interpret the strengths and weaknesses and validity and utility of the information about the unapproved use. In addition, under some relatively recent guidance from the FDA and the Pre- Approval Information Exchange Act, or PIE Act, signed into law as part of the Consolidated Appropriations Act of 2023, companies may also promote information that is consistent with the prescribing information and proactively speak to formulary committee members of payors regarding data for an unapproved drug or unapproved uses of an approved drug. We may engage in these discussions and communicate with healthcare providers, payors and other constituencies in compliance with all applicable laws, regulatory guidance and industry best practices. We will need to carefully navigate the FDA' s various regulations, guidance and policies, along with recently enacted legislation, to ensure compliance with restrictions governing promotion of our products. In recent years, a significant number of pharmaceutical and biotechnology companies have been the target of inquiries and investigations by various federal and state regulatory, investigative, prosecutorial and administrative entities in connection with the promotion of products for unapproved uses and other sales practices, including the Department of Justice and various U. S. Attorneys' Offices, the Office of Inspector General of the Department of Health and Human Services, the FDA, the Federal Trade Commission, or the FTC, and various state Attorneys General offices. These investigations have alleged violations of various federal and state laws and regulations,

including claims asserting antitrust violations, violations of the FDCA, the False Claims Act, the Prescription Drug Marketing Act and anti- kickback laws and other alleged violations in connection with the promotion of products for unapproved uses, pricing and Medicare and / or Medicaid reimbursement. Many of these investigations originate as " qui tam " actions under the False Claims Act. Under the False Claims Act, any individual can bring a claim on behalf of the government alleging that a person or entity has presented a false claim or caused a false claim to be submitted to the government for payment. The person bringing a qui tam suit is entitled to a share of any recovery or settlement. Qui tam suits, also commonly referred to as " whistleblower suits, " are often brought by current or former employees. In a qui tam suit, the government must decide whether to intervene and prosecute the case. If it declines, the individual may pursue the case alone. If the FDA or any other governmental agency initiates an enforcement action against us or if we are the subject of a qui tam suit and it is determined that we violated prohibitions relating to the promotion of products for unapproved uses, we could be subject to substantial civil or criminal fines or damage awards and other sanctions such as consent decrees and corporate integrity agreements pursuant to which our activities would be subject to ongoing scrutiny and monitoring to ensure compliance with applicable laws and regulations. Any such fines, awards or other sanctions would have an adverse effect on our revenue, business, financial prospects and reputation. Any product for which we obtain marketing approval in the future could be subject to post- marketing restrictions or withdrawal from the market and we may be subject to substantial penalties if we fail to comply with regulatory requirements or if we experience unanticipated problems with any such product following approval. Any product for which we obtain marketing approval, as well as the manufacturing processes, post- approval studies and measures, labeling, advertising and promotional activities for such product, among other things, will be subject to ongoing requirements of and review by the FDA and other regulatory authorities. These requirements include submissions of safety and other post- marketing information and reports, registration and listing requirements, requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping. Even if marketing approval of a product is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, including the requirement to implement a REMS. The FDA may also impose requirements for costly post- marketing studies or clinical trials and surveillance to monitor the safety or efficacy of a product. The FDA and other agencies, including the Department of Justice, closely regulate and monitor the post- approval marketing and promotion of products to ensure that they are manufactured, marketed and distributed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA imposes stringent restrictions on manufacturers' communications regarding off- label use and if we market any product for an indication that is not approved, we may be subject to warnings or enforcement action for off- label marketing. Violation of the FDCA and other statutes, including the False Claims Act, relating to the promotion and advertising of prescription drugs may lead to investigations or allegations of violations of federal and state health care fraud and abuse laws and state consumer protection laws. In addition, later discovery of previously unknown adverse events or other problems with any product for which we may obtain marketing approval and its manufacturers or manufacturing processes or failure to comply with regulatory requirements, may yield various results, including: • restrictions on such product, manufacturers or manufacturing processes; • restrictions on the labeling or marketing of the product; • restrictions on product distribution or use; • requirements to conduct post- marketing studies or clinical trials; • warning letters or untitled letters; • withdrawal of the product from the market; • refusal to approve pending applications or supplements to approved applications that we submit; • recall of the product; • restrictions on coverage by third- party payors; • fines, restitution or disgorgement of profits or revenues; • suspension or withdrawal of marketing approvals; • refusal to permit the import or export of the product; • product seizure; or ~~Finally, • injunctions our -~~ **or** ability to develop and market new drug..... the U. S. Among other -- **the** ~~determinations, the district court held that plaintiffs were likely to prevail in their claim that FDA had acted arbitrarily and capriciously in approving mifepristone without sufficiently considering evidence bearing on whether the drug was safe to use under the conditions identified in its labeling. Further, the district court read the standing requirements governing litigation in federal court as permitting a plaintiff to bring a lawsuit against the FDA in connection with its decision to approve an NDA or establish requirements under a REMS based on a showing that the plaintiff or its members would be harmed to the extent that FDA' s drug approval decision effectively compelled the plaintiffs to provide care for patients suffering adverse events caused by a given drug. On April 12, 2023, the district court decision was stayed, in part, by the U. S. Court of Appeals for the Fifth Circuit. Thereafter, on April 21, 2023, the U. S. Supreme Court entered a stay of the district court' s decision, in its entirety, pending disposition -~~ **imposition** of **civil** ~~the appeal of the district court decision in the Court of Appeals for -~~ **or criminal penalties** ~~the Fifth Circuit and the disposition of any petition for a writ of certiorari to or the Supreme Court. The Court of Appeals for the Fifth Circuit held oral argument in the case on May 17, 2023 and, on August 16, 2023, issued its decision. The court declined to order the removal of mifepristone from the market, finding that a challenge to the FDA' s initial approval in 2000 is barred by the statute of limitations. But the court did hold that plaintiffs were likely to prevail in their claim that changes allowing for expanded access of mifepristone that FDA authorized in 2016 and 2021 were arbitrary and capricious. On September 8, 2023, the Justice Department and a manufacturer of mifepristone filed petitions for a writ of certiorari, requesting that asked the U. S. Supreme Court to review the decision of the Court of Appeals for the Fifth Circuit. On December 13, 2023, the Supreme Court granted these petitions for writ of certiorari for the appeals court decision -~~. Similar restrictions apply to the approval of our products in the EU. The holder of a marketing authorization is required to comply with a range of requirements applicable to the manufacturing, marketing, promotion and sale of medicinal products. These include: compliance with the EU' s stringent pharmacovigilance or safety reporting rules, which can impose post- authorization studies and additional monitoring obligations; the manufacturing of authorized medicinal products, for which a separate manufacturer' s license is mandatory; and the marketing and promotion of authorized drugs, which are strictly regulated in the EU. and are also subject to EU. Member State laws. The failure to comply with these and other EU requirements can also lead to significant penalties and sanctions. Fast track, breakthrough, or

regenerative medicine advanced therapy designation by the FDA may not actually lead to a faster development or regulatory review or approval process and does not assure FDA approval of any product candidates we may develop. FDA' s fast track, breakthrough, and regenerative medicine advanced therapy, or RMAT, programs are intended to expedite the development of certain qualifying products intended for the treatment of serious diseases and conditions. If a product candidate is intended for the treatment of a serious or life- threatening condition and preclinical or clinical data demonstrate the product' s potential to address an unmet medical need for this condition, the sponsor may apply for FDA fast track designation. A product candidate may be designated as a breakthrough therapy if it is intended to treat a serious or life- threatening condition and preliminary clinical evidence indicates that the product candidate may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints. A product candidate may receive RMAT designation if it is a regenerative medicine therapy that is intended to treat, modify, reverse or cure a serious or life- threatening condition, and preliminary clinical evidence indicates that the product candidate has the potential to address an unmet medical need for such condition. While we may seek fast track, breakthrough, and / or RMAT designation, there is no guarantee that we will be successful in obtaining any such designation. Even if we do obtain such designation, we may not experience a faster development process, review or approval compared to conventional FDA procedures. A fast track, breakthrough, or RMAT designation does not ensure that the product candidate will receive marketing approval or that approval will be granted within any particular timeframe. In addition, the FDA may withdraw fast track, breakthrough, or RMAT designation if it believes that the designation is no longer supported by data from our clinical development program. Fast track, breakthrough, and / or RMAT designation alone do not guarantee qualification for the FDA' s priority review procedures. Priority review designation by the FDA may not lead to a faster regulatory review or approval process and, in any event, does not assure FDA approval of any product candidates we may develop. If the FDA determines that a product candidate is intended to treat a serious disease or condition and, if approved, would provide a significant improvement in the safety or effectiveness of the treatment, prevention, or diagnosis of such disease or condition, the FDA may designate the product candidate for priority review. A priority review designation means that the goal for the FDA to review a marketing application is six months from filing of the application, rather than the standard review period of ten months. We may request priority review for certain of our product candidates. 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 disagree and decide not to grant it. Moreover, a priority review designation does not necessarily mean a faster regulatory review 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 thereafter. We may seek PRIME Designation in the EU for our product candidates, but we might not receive such designations, and even if we do, such designations may not lead to a faster development or regulatory review or approval process. In the EU, we may seek PRIME designation for some of our product candidates in the future. PRIME is a voluntary program aimed at enhancing the EMA' s role to reinforce scientific and regulatory support in order to optimize development and enable accelerated assessment of new medicines that are of major public health interest with the potential to address unmet medical needs. The program focuses on medicines that target conditions for which there exists no satisfactory method of treatment in the EU or even if such a method exists, it may offer a major therapeutic advantage over existing treatments. PRIME is limited to medicines under development and not authorized in the EU and where the sponsor intends to apply for an initial marketing authorization application through the centralized procedure. To be accepted for PRIME, a product candidate must meet the eligibility criteria in respect of its major public health interest and therapeutic innovation based on information that is capable of substantiating the claims. The benefits of a PRIME designation include the appointment of a CHMP rapporteur to provide continued support and help to build knowledge ahead of a marketing authorization application, early dialogue and scientific advice at key development milestones, and the potential to qualify products for accelerated review, meaning reduction in the review time for an opinion on approvability to be issued earlier in the application process. PRIME enables a sponsor to request parallel EMA scientific advice and health technology assessment advice to facilitate timely market access. Even if we receive PRIME designation for any of our product candidates, the designation may not result in a materially faster development process, review or approval compared to conventional EMA procedures. Further, obtaining PRIME designation does not assure or increase the likelihood of EMA' s grant of a marketing authorization. **We may seek designation for our platform technology as a designated platform technology, but we might not receive such designation, and even if we do, such designation may not lead to a faster regulatory review or approval process. We may seek designation for our platform technology as a designated platform technology. Under FDORA, a platform technology incorporated within or utilized by a drug or biological product is eligible to be a designated platform technology if (1) the platform technology is incorporated in, or utilized by, a drug approved under a BLA; (2) preliminary evidence submitted by the sponsor of the approved or licensed drug, or a sponsor that has been granted a right of reference to data submitted in the application for such drug, demonstrates that the platform technology has the potential to be incorporated in, or utilized by, more than one drug without an adverse effect on quality, manufacturing, or safety; and (3) data or information submitted by the applicable person indicates that incorporation or utilization of the platform technology has a reasonable likelihood to bring significant efficiencies to the drug development or manufacturing process and to the review process. A sponsor may request the FDA to designate a platform technology as a designated platform technology concurrently with, or at any time after, submission of an IND application for a drug that incorporates or utilizes the platform technology that is the subject of the request. If so designated, the FDA may expedite the development and review of any subsequent original BLA for a drug that uses or incorporates the platform technology. Even if we believe our platform technology meets the criteria for such designation, the FDA may disagree and instead determine not to grant such designation. In addition, the receipt of such designation for a platform technology does not ensure that a drug will be developed more quickly or receive FDA approval. Moreover, the FDA may revoke a designation if the FDA determines that a designated platform**

technology no longer meets the criteria for such designation. Inadequate funding for the FDA, the SEC and other government agencies, including from government shut downs, or other disruptions to these agencies' operations, could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, 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, ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory and policy changes. Average review times at the agency have fluctuated in recent years as a result. Disruptions at the FDA and other agencies may also slow the time necessary for new product candidates to be reviewed and / or approved by necessary government agencies, which would adversely affect our business. In addition, government funding of the SEC and other government agencies on which our operations may rely, including those that fund research and development activities, is subject to the political process, which is inherently fluid and unpredictable. Disruptions at the FDA, EMA and other agencies may also slow the time necessary for new drugs to be reviewed and / or approved by necessary government agencies, which would adversely affect our business. For example, in recent years, including in 2018 and 2019, the U. S. government shut down several times and certain regulatory agencies, such as the FDA and the SEC, had to furlough critical employees and stop critical activities. In addition, disruptions may also result from events similar to the COVID- 19 pandemic. During the COVID- 19 pandemic, a number of companies announced receipt of complete response letters due to the FDA' s inability to complete required inspections for their applications. In the event of a similar public health emergency in the future, the FDA may not be able to continue its current pace and review timelines could be extended. Regulatory authorities outside the United States facing similar circumstances may adopt similar restrictions or other policy measures in response to a similar public health emergency and may also experience delays in their regulatory activities **. Further, with the change in the presidential administration in 2025, there is substantial uncertainty as to how, if at all, the new administration will seek to modify or revise the requirements and policies of the FDA and other regulatory agencies with jurisdiction over our product candidates. There is also uncertainty as to how other measures being implemented by the Trump Administration across the government will impact our activities and those of the FDA and its operations. For example, the potential loss of FDA personnel could lead to further disruptions and delays in FDA review of our product candidates. Similarly, efforts by the new administration to substantially reduce research funding by the NIH of medical research could have substantial direct or indirect impacts on our research activities and clinical trials** . If an emergency related disruption occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business. Future emergency- related disruptions could also affect other government agencies such as the SEC, which may also impact our business by delaying review of our public filings, to the extent such review is necessary, and our ability to access the public markets. We may not be able to obtain orphan drug exclusivity for one or more of our product candidates, and even if we do, that exclusivity 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 EU. Generally, if a product with an orphan drug designation subsequently receives the first marketing 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 from approving another marketing application for another 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 EU. The exclusivity period in the EU can be reduced to six years if a product no longer meets the criteria for orphan drug designation, in particular if the product is sufficiently profitable so that market exclusivity is no longer justified. The FDA' s standards for granting orphan drug exclusivity in the gene therapy context are unclear and evolving. For example, in September 2021, the FDA issued final guidance describing its current thinking on when a gene therapy product is the " same " as another product for purposes of orphan exclusivity. Under the guidance, if either the transgene or vector differs between two gene therapy products in a manner that does not reflect " minor " differences, the two products would be considered different drugs for orphan drug exclusivity purposes. The FDA will determine whether two vectors from the same viral class are the same on a case- by- case basis and may consider additional key features in assessing sameness. In addition, in order for the FDA to grant orphan drug exclusivity to one of our 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 more than 200, 000 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. 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. In addition, even after an orphan drug is approved, the FDA can subsequently approve the same drug 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. On August 3, 2017, the Congress passed the FDA Reauthorization Act of 2017, or FDARA. FDARA, among other things, codified the FDA' s pre- existing regulatory interpretation, to require that a drug sponsor demonstrate the clinical superiority of an orphan drug that is otherwise the same as a previously approved drug for the same rare disease in order to receive orphan drug exclusivity. The new legislation reverses prior precedent holding that the Orphan Drug Act unambiguously requires that the FDA recognize the orphan exclusivity period

regardless of a showing of clinical superiority. Further, under Omnibus legislation signed in December 2020, the requirement for a product to show clinical superiority applies to drugs and biologics that received orphan drug designation before enactment of FDARA in 2017, but have not yet been approved or licensed by the FDA. The FDA may further reevaluate the Orphan Drug Act and its regulations and policies. This may be particularly true in light of a decision from the Court of Appeals for the 11th Circuit in September 2021 finding that, for the purpose of determining the scope of exclusivity, the term " same disease or condition " means the designated " rare disease or condition " and could not be interpreted by the agency to mean the " indication or use. " Thus, the court concluded, orphan drug exclusivity applies to the entire designated disease or condition rather than the " indication or use. " Although there have been legislative proposals to overrule this decision, they have not been enacted into law. On January 23, 2023, the FDA announced that, in matters beyond the scope of that court order, the FDA will continue to apply its existing regulations tying orphan- drug exclusivity to the uses or indications for which the orphan drug was approved. We do not know if, when, or how the FDA or Congress may change the orphan drug regulations and policies in the future, and it is uncertain how any changes might affect our business. Depending on what changes the FDA may make to its orphan drug regulations and policies, our business could be adversely impacted. 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, 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 marketing approval. Our future arrangements with third- party payors 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 medicines for which we obtain marketing 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: • federal **false claims, false statements and civil monetary penalties laws prohibiting, among other things, any person from knowingly presenting, or causing to be presented, a false claim for payment of government funds or knowingly making, or causing to be made, a false statement to get a false claim paid; • federal** healthcare program anti- kickback law, which prohibits, among other things, persons from offering, soliciting, receiving or providing remuneration, directly or indirectly, to induce either the referral of an individual for, 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 Health Insurance Portability and Accountability Act of 1996,or 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;• the federal Food,Drug,and Cosmetic Act,or 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 ~~;~~; • the so- called " federal sunshine " law under the Healthcare Reform Act, which requires pharmaceutical and medical device companies to monitor and report certain financial interactions with certain healthcare providers to the Center for Medicare & Medicaid Services within the U. S. Department of Health and Human Services for re- disclosure to the public, as well as ownership and investment interests held by physicians and their immediate family members; • state laws also requiring 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 health care providers or marketing expenditures; 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. 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 penalties, including civil and criminal penalties, damages, fines, exclusion from participation in government health care programs, such as Medicare and Medicaid, 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 EU. The provision of benefits or advantages to physicians is also governed by the national anti- bribery laws of EU Member States, such as the U. K. Bribery Act 2010. Infringement of these laws could result in substantial fines and imprisonment. Payments made to physicians in certain EU 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 EU Member States. These requirements are provided in the national laws, industry codes, or professional codes of conduct applicable in the EU Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment. Recently enacted and future legislation may increase the difficulty and cost for us and any future collaborators to obtain marketing approval of and commercialize our product candidates and affect the prices we, or they, may obtain. In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could, among other things, prevent or delay marketing approval of any product candidates we may develop, restrict or regulate post- approval activities and affect our ability, or the ability of any future collaborators, to profitably sell any

products for which we, or they, obtain marketing approval. We expect that current laws, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we, or any future collaborators, may receive for any approved products. In March 2010, the United States Congress enacted the 2010 Patient Protection and Affordable Care Act, or the PPACA. In addition, other legislative changes have been proposed and adopted since the PPACA was enacted. In August 2011, the Budget Control Act of 2011, among other things, created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $ 1. 2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation' s automatic reduction to several government programs. These changes included aggregate reductions to Medicare payments to providers of up to 2 % per fiscal year, which went into effect in April 2013 and will remain in effect through 2031. The American Taxpayer Relief Act of 2012, among other things, reduced Medicare payments to several providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for any of our product candidates for which we may obtain regulatory approval or the frequency with which any such product candidate is prescribed or used. Other legislative changes have been adopted since the PPACA was enacted, including aggregate reductions to Medicare payments to providers of up to 2 % per fiscal year, which went into effect in April 2013 and will remain in effect through 2031. Under current legislation, the actual reductions in Medicare payments may vary up to 4 %. The Consolidated Appropriations Act, or CAA, which was signed into law by President Biden in December 2022, made several changes to sequestration of the Medicare program. Section 1001 of the CAA delays the 4 % Statutory Pay- As- You- Go Act of 2010, or PAYGO, sequester for two years, through the end of calendar year 2024. Triggered by the enactment of the American Rescue Plan Act of 2021, the 4 % cut to the Medicare program would have taken effect in January 2023. The CAA' s health care offset title includes Section 4163, which extends the 2 % Budget Control Act of 2011 Medicare sequester for six months into fiscal year 2032 and lowers the payment reduction percentages in fiscal years 2030 and 2031. Since enactment of the ACA, there have been and continue to be, numerous legal challenges and Congressional actions to repeal and replace provisions of the law. For example, with enactment of the Tax Act in 2017, Congress repealed the " individual mandate. " The repeal of this provision, which requires most Americans to carry a minimal level of health insurance, became effective in 2019. Further, in June 2021, The U. S. Supreme Court dismissed a lawsuit challenging the constitutionality of the ACA after finding that the plaintiffs do not have standing to bring the litigation. Litigation and legislation over the ACA are likely to continue, with unpredictable and uncertain results ~~. In January 2021, a new executive order directed federal agencies to reconsider rules and other policies that limit Americans' access to healthcare and consider actions that will protect and strengthen that access. Under this order, federal agencies are directed to re- examine: policies that undermine protections for people with pre- existing conditions; demonstrations and waivers under Medicaid and the PPACA that may reduce coverage or undermine the programs, including work requirements; policies that undermine the Health Insurance Marketplace or other markets for health insurance; policies that make it more difficult to enroll in Medicaid and under the PPACA; and policies that reduce affordability of coverage or financial assistance, including for dependents~~. In the EU, on December 13, 2021, Regulation No 2021 / 2282 on Health Technology Assessment, or HTA, amending Directive 2011 / 24 / EU, was adopted. While the regulation entered into force in January 2022, it will only begin to apply from January 2025 onwards, with preparatory and implementation- related steps to take place in the interim. Once applicable, it will have a phased implementation depending on the concerned products. The regulation intends to boost cooperation among EU Member States in assessing health technologies, including new medicinal products as well as certain high- risk medical devices, and provide the basis for cooperation at the EU level for joint clinical assessments in these areas. It will permit EU Member States to use common HTA tools, methodologies, and procedures across the EU, working together in four main areas, including joint clinical assessment of the innovative health technologies with the highest potential impact for patients, joint scientific consultations whereby developers can seek advice from HTA authorities, identification of emerging health technologies to identify promising technologies early, and continuing voluntary cooperation in other areas. Individual EU member states will continue to be responsible for assessing non- clinical (e. g., economic, social, ethical) aspects of health technology, and making decisions on pricing and reimbursement. We expect that these healthcare reforms, as well as other healthcare reform measures that may be adopted in the future, may result in additional reductions in Medicare and other healthcare funding, more rigorous coverage criteria, new payment methodologies and additional downward pressure on the price that we receive for any approved product and / or the level of reimbursement physicians receive for administering any approved product we might bring to market. Reductions in reimbursement levels may negatively impact the prices we receive or the frequency with which our products are prescribed or administered. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. Accordingly, such reforms, if enacted, could have an adverse effect on anticipated revenue from product candidates that we may successfully develop and for which we may obtain marketing approval and may affect our overall financial condition and ability to develop or commercialize product candidates. The prices of prescription pharmaceuticals in the United States and foreign jurisdictions are subject to considerable legislative and executive actions and could impact the prices we obtain for our products, if and when licensed. The prices of prescription pharmaceuticals have been the subject of considerable discussion in the United States. There have been several ~~recent~~ U. S. congressional inquiries, as well as proposed and enacted state and federal legislation designed to, among other things, bring more transparency to pharmaceutical pricing, review the relationship between pricing and manufacturer patient programs, and reduce the costs of pharmaceuticals under Medicare and Medicaid. In **October** 2020, **HHS** ~~President Trump issued several executive orders intended to lower the costs of prescription products and certain provisions in these orders have been incorporated into regulations. These regulations include an~~ **and** ~~interim~~ **the FDA published a** final rule ~~implementing~~ **allowing states and other entities to develop** a ~~most favored nation model~~ **Section 804 Importation Program, or SIP, to import certain prescription drugs from Canada into the United States. That regulation**

was challenged in a lawsuit by the Pharmaceutical Research and Manufacturers of America, or PhRMA, but the case was dismissed by a federal district court in February 2023 after the court found that PhRMA did not have standing to sue HHS. Seven states (Colorado, Florida, Maine, New Hampshire, New Mexico, Texas and Vermont) have passed laws allowing for ~~prices that would tie Medicare Part B payments~~ **the importation of drugs from Canada. North Dakota and Virginia have passed legislation establishing workgroups to examine the impact of a state importation program. As of October 2024, five states (Colorado, Florida, Maine, New Hampshire and New Mexico) had submitted Section 804 Importation Program proposals to the FDA. Vermont has submitted a concept letter to the HHS. On January 5, 2024, the FDA approved Florida' s plan** for **Canadian drug importation. That state now has authority to import** certain ~~physician~~ **drugs from Canada for a period of two years once certain conditions are met. Florida will first need to submit a pre** ~~- administered pharmaceuticals to the lowest price paid in~~ **import request for each drug selected for importation, which must be approved by** ~~other -~~ **the FDA** ~~economically advanced countries, effective January 1, 2021~~ . **The** ~~That rule, however, has been subject to a nationwide preliminary injunction and, on December 29, 2021, CMS issued a final rule to rescind it. With issuance of this rule, CMS stated~~ - **state** ~~that it~~ will **also need** ~~explore all options~~ to **relabel the drugs** ~~incorporate value into payments for Medicare Part B pharmaceuticals~~ and ~~improve beneficiaries' access~~ **perform quality testing of the products** to **meet FDA standards** ~~evidence- based care~~ . Further, on November 20, 2020, HHS finalized a regulation removing safe harbor protection for price reductions from pharmaceutical manufacturers to plan sponsors under Part D, either directly or through pharmacy benefit managers, unless the price reduction is required by law. The rule also creates a new safe harbor for price reductions reflected at the point- of- sale, as well as a safe harbor for certain fixed fee arrangements between pharmacy benefit managers and manufacturers. Pursuant to court order, the removal and addition of the aforementioned safe harbors were delayed and recent legislation imposed a moratorium on implementation of the rule until January 1, 2026. The IRA further delayed implementation of this rule to January 1, 2032. **On** ~~In addition, in October 2020, HHS and the FDA published a final rule allowing states and other entities to develop a SIP to import certain prescription drugs from Canada into the United States. The final rule is currently the subject of ongoing litigation, but at least six states (Vermont, Colorado, Florida, Maine, New Mexico, and New Hampshire) have passed laws allowing for the importation of drugs from Canada with the intent of developing SIPs for review and approval by the FDA. Further, on November 20, 2020, HHS finalized a regulation removing safe harbor protection for price reductions from pharmaceutical manufacturers to plan sponsors under Part D, either directly or through pharmacy benefit managers, unless the price reduction is required by law. The implementation of the rule has been delayed by the Infrastructure Investment and Jobs Act to January 1, 2026 in response to ongoing litigation. The rule also creates a new safe harbor for price reductions reflected at the point- of- sale, as well as a new safe harbor for certain fixed fee arrangements between pharmacy benefit managers and manufacturers, the implementation of which have also been delayed until January 1, 2026 by the Infrastructure Investment and Jobs Act. More recently, on~~ August 16, 2022, the IRA was signed into law by President Biden. The new legislation has implications for Medicare Part D, which is a program available to individuals who are entitled to Medicare Part A or enrolled in Medicare Part B to give them the option of paying a monthly premium for outpatient prescription drug coverage. Among other things, the IRA requires manufacturers of certain drugs to engage in price negotiations with Medicare (beginning in 2026), with prices that can be negotiated subject to a cap; imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation (first due in 2023); and replaces the Part D coverage gap discount program with a new discounting program (beginning in 2025). The IRA permits the Secretary of the Department of Health and Human Services (HHS) to implement many of these provisions through guidance, as opposed to regulation, for the initial years. Specifically, with respect to price negotiations, Congress authorized Medicare to negotiate lower prices for certain costly single- source drug and biologic products that do not have competing generics or biosimilars and are reimbursed under Medicare Part B and Part D. CMS may negotiate prices for ten high- cost drugs paid for by Medicare Part D starting in 2026, followed by 15 Part D drugs in 2027, 15 Part B or Part D drugs in 2028 and 20 Part B or Part D drugs in 2029 and beyond. This provision applies to drug products that have been approved for at least 9 years and biologics that have been licensed for 13 years, but does not apply to drugs and biologics that have been approved for a single rare disease or condition. Nonetheless, since CMS may establish a maximum price for these products in price negotiations, we would be fully at risk of government action if our products are the subject of Medicare price negotiations. Moreover, given the risk that could be the case, these provisions of the IRA may also further heighten the risk that we would not be able to achieve the expected return on our drug products or full value of our patents protecting our products if prices are set after such products have been on the market for nine years. **The first cycle of negotiations for the Medicare Drug Price Negotiation Program commenced in the summer of 2023. On August 15, 2024, the HHS published the results of the first Medicare drug price negotiations for ten selected drugs that treat a range of conditions, including diabetes, chronic kidney disease, and rheumatoid arthritis. The prices of these ten drugs will become effective January 1, 2026. On January 17, 2025, CMS announced its selection of 15 additional drugs covered by Part D for the second cycle of negotiations by February 1, 2025. While there had been some questions about the Trump Administration' s position on this program, CMS issued a public statement on January 29, 2025, declaring that lowering the cost of prescription drugs is a top priority of the new administration and CMS is committed to considering opportunities to bring greater transparency in the negotiation program. The second cycle of negotiations with participating drug companies will occur during 2025, and any negotiated prices for this second set of drugs will be effective starting January 1, 2027.** Further, the legislation subjects drug manufacturers to civil monetary penalties and a potential excise tax for failing to comply with the legislation by offering a price that is not equal to or less than the negotiated " maximum fair price " under the law or for taking price increases that exceed inflation. The legislation also requires manufacturers to pay rebates for drugs in Medicare Part D whose price increases exceed inflation. The new law also caps Medicare out- of- pocket drug costs at an estimated $ 4, 000 a year in 2024 and, thereafter beginning in 2025, at 2, 000 a year. In addition, the IRA potentially raises legal risks with respect to individuals participating in a Medicare Part D prescription

drug plan who may experience a gap in coverage if they required coverage above their initial annual coverage limit before they reached the higher threshold, or " catastrophic period " of the plan. Individuals requiring services exceeding the initial annual coverage limit and below the catastrophic period, must pay 100 % of the cost of their prescriptions until they reach the catastrophic period. Among other things, the IRA contains many provisions aimed at reducing this financial burden on individuals by reducing the co- insurance and co- payment costs, expanding eligibility for lower income subsidy plans, and price caps on annual out- of- pocket expenses, each of which could have potential pricing and reporting implications. ~~There has~~ **On June 6, 2023, Merck & Co. filed a lawsuit against HHS and CMS asserting that, among other things, the IRA' s Drug Price Negotiation Program for Medicare constitutes an uncompensated taking in violation of the Fifth Amendment of the Constitution. Subsequently, a number of other parties, including the U. S. Chamber of Commerce, Bristol Myers Squibb Company, the Pharmaceutical Research and Manufacturers of America, Novo Nordisk, Inc., Janssen Pharmaceuticals, Inc., Novartis AG, AstraZeneca plc and Boehringer Ingelheim International GMBH,** also **filed lawsuits** ~~been increasing executive, legislative and enforcement interest~~ in **various courts** ~~the United States~~ with ~~respect to drug pricing practices~~ **similar constitutional claims against HHS and CMS** . There have been ~~U~~ **various decisions by the courts considering these cases since they were filed** . ~~S. congressional inquiries~~ **The HHS has generally won the substantive disputes in these cases** , ~~presidential executive orders~~ and ~~proposed and enacted legislation designed to~~ **various federal district court judges have expressed skepticism regarding the merits of the legal arguments being pursued by the pharmaceutical industry. Certain of these cases are now on appeal** , ~~among~~ **and on October 30, 2024, the Court of Appeals for the Third Circuit heard oral argument in three of these cases. We expect that litigation involving these and** other **provisions** ~~things, bring more transparency to drug pricing, reduce the cost~~ of ~~prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs and reform government program reimbursement methodologies for drugs. For example, in an executive order, the administration of President Biden expressed its intent to pursue certain policy initiatives to reduce drug prices and, in response, HHS released a Comprehensive Plan for Addressing High Drug Prices that outlines principles for drug pricing reform and sets out a variety of potential legislative policies that Congress could pursue to lower drug prices. Further, in response to the Biden administration' s October 2022 executive order, on February 14, 2023, HHS released a report outlining three -- **the IRA** ~~new models for testing by the CMS Innovation Center which will be evaluated on their ability to lower the cost of drugs, promote accessibility, and improve the quality of care. It is unclear whether the models will be utilized in any health reform measures in the future. Further, on December 7, 2023, the Biden administration announced an initiative to control the price of prescription drugs through the use of march- in rights under the Bayh- Dole Act of 1980. On December 8, 2023, the National Institute of Standards and Technology published for comment a Draft Interagency Guidance Framework for Considering the Exercise of March- In Rights which for the first time includes the price of a product as one factor an agency can use when deciding to exercise march- in rights. While march- in rights have not previously been exercised, it is uncertain if that~~ will continue ~~under the new framework~~ **, with unpredictable and uncertain results** . Accordingly, while it is currently unclear how the IRA will be effectuated, we cannot predict with certainty what impact any federal or state health reforms will have on us, but such changes could impose new or more stringent regulatory requirements on our activities or result in reduced reimbursement for our products, any of which could adversely affect our business, results of operations and financial condition ~~Amendment of the Constitution.Subsequently,a number of other parties,including the U.S.Chamber of Commerce,Bristol Myers Squibb Company,the Pharmaceutical Research and Manufacturers of America,Novo Nordisk,Inc.,Janssen Pharmaceuticals,Inc.,Novartis AG,AstraZeneca plc and Boehringer Ingelheim International GMBH,also filed lawsuits in various courts with similar constitutional claims against HHS and CMS.We expect that litigation involving these and other provisions of the IRA will continue,with unpredictable and uncertain results~~ .At the state level,individual states are increasingly aggressive in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing,including price or patient reimbursement constraints,discounts,restrictions on certain product access and marketing cost disclosure and transparency measures,and,in some cases,designed to encourage importation from other countries and bulk purchasing **.This is increasingly true with respect to products approved pursuant to the accelerated approval pathway.State Medicaid programs and other payers are developing strategies and implementing significant coverage barriers,or refusing to cover these products outright,arguing that accelerated approval drugs have insufficient or limited evidence despite meeting the FDA' s standards for accelerated approval** .In addition,regional healthcare organizations 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.These measures could reduce the ultimate demand for our products,once approved,or put pressure on our product pricing.We expect that additional state and federal healthcare reform measures will be adopted in the future,any of which could limit the amounts that federal and state governments will pay for healthcare products and services,which could result in reduced demand for our product candidates or additional pricing pressures. **This** ~~In the European Union,pricing and reimbursement schemes vary widely from country to country.Some countries provide that products~~ may be ~~marketed only after~~ **increasingly true with respect to products approved pursuant to the accelerated approval pathway.State Medicaid programs and other payers are developing strategies and implementing significant coverage barriers,or refusing to cover these products outright,arguing that accelerated approval drugs have insufficient or limited evidence despite meeting the FDA' s standards for accelerated approval** . In the EU, similar political, economic and regulatory developments may affect our ability to profitably commercialize our product candidates, if approved. In markets outside of the United States and the EU, reimbursement and healthcare payment systems vary significantly by country, and many countries have instituted price ceilings on specific products and therapies. In some countries, particularly the countries of the EU, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-

effectiveness of our product candidate to other available therapies. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed, possibly materially. 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, **principal investigators** and **any** commercial partners ~~, and, if~~ we **may have** ~~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 EU 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 have adopted a code of conduct 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. Laws and regulations governing ~~any~~ international operations ~~we may have in the future~~ may preclude us from developing, manufacturing and selling certain product candidates 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 Foreign Corrupt Practices Act, or 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 us 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 U. K. 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 privacy laws, information security laws, regulations, policies and contractual obligations related to data privacy and security and changes in such laws, regulations, policies and contractual obligations **, and failure to comply with such requirements** could **subject us to significant fines and penalties and other consequences, which may have a material** ~~adversely~~ -- **adverse** ~~affect~~ **effect on** our business **, financial condition or results of operations** . We are subject to ~~a wide variety of~~ data privacy and protection laws and regulations that apply to the collection, transmission, storage and use of personally- identifying information, which among other things, impose certain requirements relating to the privacy, security and transmission of personal information, including comprehensive regulatory systems in the U. S., EU ~~and ,~~ U. K. and other countries ~~around the world~~ **in which we may conduct business** . 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. Failure to comply with any of these laws and regulations could result in enforcement action against us, including fines, imprisonment of company officials and public censure, claims for damages by affected individuals, 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 and regulations related to the privacy and security of personal information.** In ~~addition~~ **particular** , ~~these laws and~~ regulations **promulgated pursuant** ~~may impose additional costs on our business activities, including costs of contracting with vendors and other business partners and the costs of identifying appropriate patients for clinical trials or subsequent treatment. If we are unable~~ to **HIPAA establish** ~~properly protect the~~ privacy and security **standards that limit the use and disclosure** of individually identifiable health information, ~~we could~~ **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. Determining whether protected health information has been handled in compliance with applicable privacy standards and our contractual obligations can** be ~~found~~ **complex and may be subject** to **changing interpretation** ~~have breached our contracts~~ . **If** ~~Further, if~~ we fail to comply with applicable privacy laws, **including applicable HIPAA privacy and security standards,** we could face civil and criminal penalties ~~or other~~ **. HHS** enforcement **activity can result in financial liability and reputational harm** ~~risks related to our business. In addition to these potential penalties~~ , **and responses to** such enforcement activity can consume significant internal resources **. In recent months, the Officer of Civil Rights, or OCR, has been especially active in enforcing the HIPAA rules** . In addition, state attorneys general are authorized to bring civil actions seeking either injunctions or damages in response to violations that threaten the privacy of state residents. We cannot be sure how these 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 and regulations at the federal and state level may be costly and require ongoing modifications to our policies, procedures and systems. **Additionally, OCR is looking to amend the HIPAA Security Rule, which, if and when finalized, could create additional compliance obligations and risk for our business. In addition to potential enforcement by the HHS, we could also be potentially subject to privacy enforcement from the FTC. The FTC has been particularly focused on the unpermitted processing of health and genetic data through its recent enforcement actions and is expanding the types of privacy violations that it interprets to be " unfair " under Section 5 of the FTC Act, as well as the types of activities it views to trigger the Health Breach Notification Rule, which the FTC also has the authority to enforce. The FTC is also in the process of developing rules related to commercial surveillance and data security. We will need to account for the FTC' s evolving rules and guidance for proper privacy and data security practices in order to mitigate risk for a potential enforcement action, which may be costly. Finally, both the FTC and HHS' s enforcement priorities, as well as those of other federal regulators, may be impacted by the change in administration and new leadership. These shifts in enforcement priorities may also impact our business. There are also increased restrictions at the federal level relating to transferring sensitive data outside of the U. S. to certain foreign countries. For example, in 2024, Congress passed H. B. 815, which included the Protecting Americans' Data from Foreign Adversaries Act of 2024. This law creates certain restrictions for entities that disclose sensitive data (including potential health data) to countries such as China. Failure to comply with these rules can lead to a potential FTC enforcement action. Additionally, the Department of Justice recently finalized a rule implementing Executive Order 14117, which creates similar restrictions related to the transfer of sensitive U. S. data to countries such as China. These data transfer restrictions, and others that may pass in the future, may create operational challenges and legal risks for our business. States are also active in creating specific rules relating to the processing of personal information. In 2018, California passed into law the California Consumer Privacy Act or CCPA, which took effect on January 1, 2020 and imposed many requirements on businesses that process the personal information of California residents. Many of the CCPA' s requirements are similar to those found in the European General Data Protection Regulation, or GDPR, which is further described below, including requiring businesses to provide notice to data subjects regarding the information collected about them and how such information is used and shared, and providing data subjects the right to request access to such personal information and, in certain cases, request the erasure of such personal information. The CCPA also affords California residents the right to opt- out of " sales " of their personal information. The CCPA contains significant penalties for companies that violate its requirements. In November 2020, California voters passed a ballot initiative for the California Privacy Rights Act, or CPRA, which went into effect on January 1, 2023 and significantly expanded the CCPA to incorporate additional GDPR- like provisions, including requiring that the use, retention and sharing of personal information of California residents be reasonably necessary and proportionate to the purposes of collection or processing, granting additional protections for sensitive personal information, and requiring greater disclosures related to notice to residents regarding retention of information. The CPRA also created a new enforcement agency – the California Privacy Protection Agency – the sole responsibility of which is to enforce the CPRA and other California privacy laws, which will further increase compliance risk. The provisions in the CPRA may apply to some of our business activities. In addition to California, at least eighteen other states have passed comprehensive privacy laws similar to the CCPA and CPRA. These laws are either in effect or will go into effect over the next few years. Like the CCPA and CPRA, these laws create obligations related to the processing of personal information, as well as special obligations for the processing of " sensitive " data, which includes health data in some cases. Some of the provisions of these laws may apply to our business activities. There are also states that are strongly considering or have already passed comprehensive privacy laws during the 2024 legislative sessions that will go into effect in 2025 and beyond, including New Hampshire and New Jersey. Other states will be considering these laws in the future, and Congress has also been debating passing a federal privacy law. There are also states that are specifically regulating health information that may affect our business. For example, Washington state passed a health privacy law in 2023 that regulates the collection and sharing of health information, and the law also has a private right of action, which further increases the relevant compliance risk. Connecticut and Nevada have also**

passed similar laws regulating consumer health data, and more states are considering such legislation. These laws may impact our business activities, including our identification of research subjects, relationships with business partners and ultimately the marketing and distribution of our products. Plaintiffs' lawyers are also increasingly using privacy- related statutes at both the state and federal level to bring lawsuits against companies for their data- related practices. In particular, there have been a significant number of cases filed against companies for their use of pixels and other web trackers. These cases often allege violations of the California Invasion of Privacy Act and other state laws regulating wiretapping, as well as the federal Video Privacy Protection Act. The rise in these types of lawsuits creates potential risk for our business. Similar to the laws in the U. S., there are significant privacy and data security laws that apply in Europe and other countries. The collection, use, disclosure, transfer, or other processing of personal data, including personal health data, regarding individuals who are located in the EEA, and the processing of personal data that takes place in the EEA, is regulated by the GDPR, which went into effect in May 2018 and which imposes obligations on companies that operate in our industry with respect to the processing of personal data and the cross- border transfer of such data. The GDPR imposes onerous accountability obligations requiring data controllers and processors to maintain a record of their data processing and policies. If our or our partners' or service providers' privacy or data security measures fail to comply with the GDPR requirements, we may be subject to litigation, regulatory investigations, enforcement notices requiring us to change the way we use personal data and / or fines of up to 20 million Euros or up to 4 % of the total worldwide annual turnover of the group of companies of the preceding financial year, whichever is higher, as well as compensation claims by affected individuals, negative publicity, reputational harm and a potential loss of business and goodwill. The GDPR places restrictions on the cross- border transfer of personal data from the EU to countries that have not been found by the EC to offer adequate data protection legislation. There are ongoing concerns about the ability of companies to transfer personal data from the EU to other countries. In July 2020, the Court of Justice of the EU, or CJEU, invalidated the EU- U. S. Privacy Shield, one of the mechanisms used to legitimize the transfer of personal data from the EEA to the U. S. The CJEU decision also drew into question the long- term viability of an alternative means of data transfer, the standard contractual clauses, for international transfers of personal data from the EEA. This CJEU decision resulted in increased scrutiny on data transfers and increased our costs of compliance with data privacy legislation, as well as our costs of negotiating appropriate privacy and security agreements with our vendors and business partners. In October 2022, President Biden signed an executive order to implement the EU- U. S. Data Privacy Framework, which serves as a replacement to the EU- U. S. Privacy Shield. The EC adopted the adequacy decision on July 10, 2023. The adequacy decision permits U. S. companies who self- certify to the EU- U. S. Data Privacy Framework to rely on it as a valid data transfer mechanism for data transfers from the EU to the U. S. However, some privacy advocacy groups have already suggested that they will be challenging the EU- U. S. Data Privacy Framework. If these challenges are successful, they may not only impact the EU- U. S. Data Privacy Framework, but also further limit the viability of the standard contractual clauses and other data transfer mechanisms. The uncertainty around this issue has the potential to impact our business. Following the withdrawal of the U. K. from the EU, the U. K. Data Protection Act of 2018 applies to the processing of personal data that takes place in the U. K. and includes parallel obligations to those set forth by GDPR. In relation to data transfers, both the U. K. and the EU have determined, through separate " adequacy " decisions, that data transfers between the two jurisdictions are in compliance with the U. K. Data Protection Act of 2018 and the GDPR, respectively. The U. K. and the U. S. have also agreed to a U. S.- U. K. " Data Bridge, " which functions similarly to the EU- U. S. Data Privacy Framework and provides an additional legal mechanism for companies to transfer data from the U. K. to the U. S. Switzerland has also approved an adequacy decision in relation to the Swiss- U. S. Data Privacy Framework (which functions similarly to the EU- U. S. Data Privacy Framework and the U. S.- U. K. Data Bridge in relation to data transfers from Switzerland to the U. S.). Any changes or updates to these developments have the potential to impact our business. Beyond GDPR, there are privacy and data security laws in a growing number of countries around the world. While many loosely follow GDPR as a model, other laws contain different or conflicting provisions. These laws will impact our ability to conduct our business activities, including both our clinical trials and the sale and distribution of commercial products, through increased compliance costs, costs associated with contracting and potential enforcement actions. While we continue to address the implications of the recent changes to data privacy regulations, data privacy remains an evolving landscape at both the domestic and international level, with new regulations coming into effect and continued legal challenges, and our efforts to comply with the evolving data protection rules may be unsuccessful. It is possible that these laws may be interpreted and applied in a manner that is inconsistent with our practices. We must devote significant resources to understanding and complying with this changing landscape. Failure to comply with laws regarding data protection would expose us to risk of enforcement actions taken by data protection authorities in the EEA and elsewhere 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 in the ~~United States~~ **U. S.** regarding privacy and security of personal information could expose us to penalties under such laws. Any such failure to comply with data protection and privacy laws could result in 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, 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. Social media platforms present new risks and challenges to our business. As social media continues to expand, it also presents us with new risks and challenges. Social media is increasingly being used to communicate information about us, our programs and the diseases our product candidates are being developed to treat. Social media practices in the pharmaceutical and biotechnology industries are evolving, which creates uncertainty and risk

of noncompliance with regulations applicable to our business. For example, patients may use social media platforms to comment on the effectiveness of, or adverse experiences with, a product or a product candidate, which could result in reporting obligations or other consequences. Further, the accidental or intentional disclosure of non- public information by our workforce or others through media channels could lead to information loss. In addition, there is a risk of inappropriate disclosure of sensitive information or negative or inaccurate posts or comments about us, our products, or our product candidates on any social media platform. If any of these events were to occur or we otherwise fail to comply with applicable regulations, we could incur liability, face restrictive regulatory actions or incur other harm to our business including quick and irreversible damage to our reputation, brand image and goodwill. Risks related to employee matters, managing growth and information technology Our future growth may depend on our ability to identify and acquire businesses or technologies, and if we do not successfully do so, or otherwise fail to integrate any new businesses or technologies into our operations, we may have limited growth opportunities and it could result in significant impairment charges or other adverse financial consequences. We are continuing to seek to acquire businesses or technologies that we believe are a strategic fit with our business strategy. Future acquisitions, however, may entail numerous operational and financial risks, including: • a reduction of our current financial resources; • incurrence of substantial debt or dilutive issuances of securities to pay for acquisitions and in connection with future milestone payment obligations under such acquisition agreements; • difficulty or inability to secure financing to fund development activities for those acquired or in- licensed technologies; • higher than expected acquisition and integration costs; • disruption of our business, customer base and diversion of our management' s time and attention to develop acquired technologies; and • exposure to unknown liabilities. We may not have sufficient resources to **acquire** ~~identify and execute the acquisition~~ businesses and technologies and integrate them into our current infrastructure. In particular, we may compete with larger biotechnology companies and other competitors in our efforts to establish new collaborations and in- licensing opportunities. These competitors likely will have access to greater financial resources than we do and may have greater expertise in identifying and evaluating new opportunities. Furthermore, there may be overlap between our product candidates and the companies which we acquire that may create conflicts in relationships or other commitments detrimental to the integrated businesses. Additionally, the time between our expenditures to acquire or in- license new technologies or businesses and the subsequent generation of revenues from those acquired technologies or businesses (or the timing of revenue recognition related to licensing agreements and / or strategic collaborations) could cause fluctuations in our financial performance from period to period. Finally, if we devote resources to potential acquisition opportunities that are never completed, or if we fail to realize the anticipated benefits of those efforts, we could incur significant impairment charges or other adverse financial consequences. Our future success depends on our ability to retain our Chief Executive Officer, President and other key executives and to attract, retain, and motivate qualified personnel. We are highly dependent on John Evans, our Chief Executive Officer, and Dr. Giuseppe Ciaramella, our President, as well as the other principal members of our management and scientific teams. Mr. Evans, Dr. Ciaramella and such other principal members are employed " at will, " meaning we or they may terminate their employment 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. Recruiting and retaining qualified scientific, clinical, manufacturing, and sales and marketing personnel will also be critical to our success ~~. Our recently announced portfolio prioritization and strategic restructuring will result in the loss of personnel with deep institutional or technical knowledge. Further, the transition could potentially disrupt our operations and relationships with employees, suppliers and partners due to added costs, operational inefficiencies, decreased employee morale and productivity and increased turnover. Furthermore, these personnel changes may increase our dependency on the other members of our leadership team and other employees that remain with us, who are not contractually obligated to remain employed with us and may leave at any time. Any such departure could be particularly disruptive and, to the extent we experience additional turnover, competition for top talent is high such that we may be delayed in identifying and hiring candidates that meet our requirements~~ . Our competitors may seek to use these transitions and the related potential disruptions to gain a competitive advantage over us. There is currently a shortage of highly qualified personnel in our industry, which is likely to continue. Additionally, this shortage of highly qualified personnel is particularly acute in the area where we are located. We may not be able to attract and retain these 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. 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 development, regulatory, and future sales and marketing capabilities, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations. In connection with the growth and advancement of our pipeline, we expect to increase the number of our employees and the scope of our operations in the areas of drug development, regulatory affairs, and sales and marketing. To manage our anticipated future growth in these areas, 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 an early- stage biotechnology company, we are actively pursuing new platforms

and 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. 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 product candidates. If our management is unable to effectively manage any future growth, 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 our product candidates, if approved, will depend in part on our ability to effectively manage the future development and expansion of our company. Risks related to our common stock The market price of our common stock may be volatile and fluctuate substantially, which could result in substantial losses for purchasers of our common stock and subject us to securities class action litigation. Our stock price has been, and in the future, may be, subject to substantial volatility. The stock market in general, and the market for biopharmaceutical companies in particular, have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, you may not be able to sell your common stock at or above your initial purchase price. The market price for our common stock may be influenced by many factors, including: • 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 that we develop; • failure or discontinuation of any of our product development and research programs; • results of 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 medicines, including those that involve gene 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 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 additional product candidates or products; • actual or anticipated changes in estimates as to financial results, development timelines, or recommendations by securities analysts; • announcement or expectation of additional financing efforts; • sales of our common stock by us, our insiders or other stockholders; • expiration of any future 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 estimates or recommendations by securities analysts, if any, that cover our stock; • changes in the structure of healthcare payment systems; • market conditions in the pharmaceutical and biotechnology sectors; • the effects of pandemics and public health emergencies; • general economic, industry, and market conditions; and • the other factors described in this " Risk Factors " section. 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. 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. Maintaining adequate internal financial and accounting controls and procedures to ensure 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. To comply with the requirements of being a public company, we have undertaken certain actions, such as documenting, reviewing and improving our internal controls and procedures for compliance with Section 404 of the Sarbanes- Oxley Act of 2002, or SOX, which requires annual management assessment of the effectiveness of our internal control over financial reporting and an annual report on and attestation to such assessment by our registered public accounting firm. Notwithstanding such actions, we may not 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, or any disagreement with our auditors on whether we have maintained such adequacy, 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 may harm our common stock price and make it more difficult for us to effectively market and sell our service to new and existing customers. We have incurred and expect to continue to incur increased costs as a result of operating as a public company, and our management is required to devote substantial time to new compliance initiatives and corporate governance practices. As a public company, we have incurred and expect to continue to incur significant legal, accounting, and other expenses. The Sarbanes- Oxley Act of 2002, the Dodd- Frank Wall Street Reform and Consumer Protection Act, the listing requirements of The Nasdaq Stock 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. Our management and other personnel devote a substantial amount of time towards maintaining compliance with these requirements. These requirements have increased our legal and financial compliance costs and make some activities more time- consuming and costly. For example, as a public company it is more difficult and more expensive for us to maintain director and officer liability insurance, which could make it more difficult for us to attract and retain qualified members of our board of directors. 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. We do not expect to pay any dividends for the foreseeable future. Investors may never obtain a return on their investment unless they sell our common stock for a price higher than which they paid for it. 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. Provisions in our fourth amended certificate of incorporation, our second amended and restated by- laws, 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 fourth amended certificate of incorporation, or our certificate of incorporate, and our second amended and restated by- laws, or our by- laws, 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 certificate of incorporation and by- laws 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 by- laws; and • require supermajority votes of the holders of our common stock to amend specified provisions of our certificate of incorporation and by- laws. 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 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 General Corporation Law of the State of Delaware, or the DGCL, which prohibits a person who owns in excess of 15 % 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 % of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. Any provision of our certificate of incorporation, by- laws 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. Our certificate of incorporation and by- laws designate the state or federal courts within the State of Delaware as the exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees. Our certificate of incorporation provides that, subject to limited exceptions, the state or federal courts within the State of Delaware will be exclusive forums 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 or other employees to us or our stockholders, (3) any action asserting a claim against us arising pursuant to any provision of the DGCL, our certificate of incorporation or our by- laws, (4) any action to interpret, apply, enforce or determine the validity of our certificate of incorporation or our by- laws or (5) any other action asserting a claim against us that is governed by the internal affairs doctrine. Furthermore, our by- laws also 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 exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and to have consented to the provisions of our certificate of incorporation and by- laws described above. These choice of forum provisions may limit a stockholder' s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and employees. Alternatively, if a court were to find these provisions of our certificate of incorporation or by- laws inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business and financial condition. For example, the Court of Chancery of the State of Delaware recently determined that a provision stating that federal district courts of the United States are the exclusive forum for resolving any complaint asserting a cause of action under the Securities Act is not enforceable. However, this decision may be reviewed and ultimately overturned by the Delaware Supreme Court. General risk factors Public health emergencies or epidemics could adversely impact our business. Public health emergencies or epidemics could materially and adversely affect our business and our financial results and could cause a disruption to the development of our product candidates. The extent to any such public health emergency may impact our business, results of operations and future growth prospects will depend on a variety of factors, including the duration, scope and severity of the emergency, the existence and extent of travel restrictions and social distancing in the U. S. and other countries, business closures or business disruptions, the effectiveness of actions taken in the U. S. and other countries, and the availability of therapeutic interventions. Some factors from public health emergencies that could delay or otherwise adversely affect the completion of our preclinical and clinical activities and, depending on the duration of the outbreak, the initiation of any future clinical trials, as well as our business

generally, include: • 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, cyber security and data accessibility, or communication or mass transit disruptions, any of which could adversely impact our business operations or delay necessary interactions with local regulators, ethics committees, manufacturing sites, research sites and other important agencies and contractors; • limitations on the availability of preclinical and clinical trial sites, researchers and investigators, regulatory agency personnel, and materials; • limitations on our business operations by local, state, or the federal government that could impact our ability to conduct our preclinical and clinical activities; • limitations on travel that could hinder our timelines; • interruption in global shipping affecting the transport of key materials; • interruption of, or delays in receiving, key materials from our CMOs due to staffing shortages, production slowdowns or stoppages, increased demand from third parties for key materials and disruptions in delivery systems; and • disruptions to our third- party suppliers, including through the effects of facility closures, reductions in operating hours, staggered shifts and other social distancing efforts, labor shortages, decreased productivity and unavailability of materials or components. Public health emergencies may also have the effect of heightening many of the other risks described in this section titled " Item 1A. Risk Factors, " such as risks related to our need to raise additional funding, fluctuation of our quarterly financial results, and our ability to obtain and maintain regulatory approvals. Comprehensive tax reform legislation could adversely affect our business and financial condition. Recent changes or future changes in tax law may adversely affect our business or financial condition. On December 22, 2017, the Tax Act was signed into law. The Tax Act, as amended by the CARES Act, among other things, contains significant changes to corporate taxation, including the reduction of the corporate tax rate from a top marginal rate of 35 % to a flat rate of 21 % and **, for taxable years beginning after December 31, 2020,** the limitation of the deduction for net operating losses to 80 % of current year taxable income in respect of net operating losses generated during or after 2018. Any federal net operating loss incurred in 2018 and in future years may now be carried forward indefinitely pursuant to the Tax Act, but can no longer be carried back. Similar rules and limitations may apply for state income tax proposes **. In addition, beginning in 2022, the Tax Act eliminates the option to deduct research and development expenditures currently and generally requires corporations to capitalize and amortize them over five years (or 15 years for expenditures attributable to foreign research)** . In addition to the Tax Act, as part of Congress' response to the COVID- 19 pandemic, economic relief legislation was enacted in 2020 and 2021 containing tax provisions, including the CARES Act and the Inflation Reduction Act, or the IRA, which was signed into law in August 2022, introduced a number of new tax provisions. The IRA in particular includes a one percent excise tax imposed on certain stock repurchases by publicly traded companies, which generally applies to any acquisition of stock by the publicly traded company (or certain of its affiliates) from a stockholder of the company in exchange for money or other property (other than stock of the company itself), subject to a de minimis exception. Thus, the excise tax could apply to certain transactions that are not traditional stock repurchases. Regulatory guidance under the Tax Act and such additional legislation is and continues to be forthcoming, and such guidance could ultimately increase or lessen the impact of these laws on our business and financial condition. **Additional tax legislation may also be enacted in the future, which could have an impact on us.** In addition, it is uncertain if and to what extent various states will conform to the Tax Act and ~~this~~ additional tax legislation **. Unstable market and economic conditions may have serious adverse consequences on our business, financial condition and stock price** . Global credit and financial markets have experienced extreme volatility and disruptions in the past several years, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability, disruptions impacting global supply, the conflict between Russia and Ukraine and related sanctions against Russia, increasing inflation rates and interest rate changes. There can be no assurance that further deterioration in credit and financial markets and confidence in economic conditions will not occur. Our general business strategy may be adversely affected by any such economic downturn, volatile business environment or continued unpredictable and unstable market conditions. If the current equity and credit markets deteriorate, or do not improve, it may make any necessary debt or equity financing more difficult, more costly, and more dilutive. Furthermore, our stock price may decline due in part to the volatility of the stock market and the general economic downturn. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance and stock price and could require us to delay, scale back or discontinue the development and commercialization of one or more of our product candidates or delay our pursuit of potential in- licenses or acquisitions. In addition, there is a risk that one or more of our current service providers, manufacturers and other partners may not survive these difficult economic times, which could directly affect our ability to attain our operating goals. 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 relies in part on the research and reports that industry or financial analysts publish about us or our business. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline. Moreover, if any of the analysts who cover us issue an adverse or misleading opinion regarding us, our business model or our stock performance, or if our operating results fail to meet the expectations of the investor community, one or more of the analysts who cover our company may change their recommendations regarding our company, and our stock price could decline. Our internal computer systems, or those of our third- party vendors, collaborators or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of our product development programs, compromise sensitive 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 systems and those of our current and any future third- party vendors, collaborators and other contractors or consultants are vulnerable to damage or interruption from computer viruses, computer hackers, malicious code, employee theft 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 through our information security program and relevant contractual agreements with our business partners, if such an event were to occur and cause interruptions in our operations, it 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 information or other disruptions, including the possible loss of personal data. 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, as well as subject us to obligations and risks related to the potential loss of personal data. If we were to experience a significant cybersecurity breach of our information systems or data, the costs associated with the investigation, remediation and potential notification of the breach to counterparties and data subjects could be material, in addition to potential costs related to regulatory investigations in the United States or other countries. In addition, our remediation efforts may not be successful. 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 information. 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' or other contractors' or consultants' data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability including litigation exposure, penalties and fines, we could become the subject of regulatory action or investigation, our competitive position could be harmed and the further development and commercialization of our product candidates could be delayed. Any of the above could have a material adverse effect on our business, financial condition, results of operations or prospects. **Artificial intelligence presents risks and challenges that can impact our business including by posing security risks to our confidential information, proprietary information, and personal data. Issues in the development and use of artificial intelligence, combined with an uncertain regulatory environment, may result in reputational harm, liability, or other adverse consequences to our business operations. As with many technological innovations, artificial intelligence presents risks and challenges that could impact our business. We may adopt and integrate generative artificial intelligence tools into our systems for specific use cases reviewed by legal and information security. Our vendors may incorporate generative artificial intelligence tools into their offerings without disclosing this use to us, and the providers of these generative artificial intelligence tools may not meet existing or rapidly evolving regulatory or industry standards with respect to privacy and data protection and may inhibit our or our vendors' ability to maintain an adequate level of service and experience. If we, our vendors, or our third- party partners experience an actual or perceived breach or privacy or security incident because of the use of generative artificial intelligence, we may lose valuable intellectual property and confidential information and our reputation and the public perception of the effectiveness of our security measures could be harmed. Further, bad actors around the world use increasingly sophisticated methods, including the use of artificial intelligence, to engage in illegal activities involving the theft and misuse of personal information, confidential information, and intellectual property. Additionally, there are increased rules and regulations governing the use and development of artificial intelligence at the state, federal, and international levels, which creates potential compliance and enforcement risk. These developments could damage our reputation, result in the loss of valuable property and information, and adversely impact our business.**