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

FORM 10-K

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Fiscal Year Ended September 30, 2020
or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Transition Period from to

Commission File Number 333-88480

NEUBASE THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**46-5622433**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

700 Technology Drive, Third Floor, Pittsburgh, PA 15219
(Address of principal executive offices and zip code)

(646) 450-1790

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.0001 par value per share	NBSE	The Nasdaq Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

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

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

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes☐ No ☒

As of December 21, 2020, 23,177,591 shares of the common stock, par value $0.0001, of the registrant were outstanding.

The aggregate market value of the voting stock held by non-affiliates of the registrant on the last business day of the registrant's most recently completed second fiscal quarter: $101 million based upon the closing sale price of our common stock of $7.12 on that date. Common stock held by each officer and director and by each person known to own in excess of 10% of outstanding shares of our common stock has been excluded in that such persons may be deemed to be affiliates. The determination of affiliate status for this purpose is not necessarily a conclusive determination for other purposes.

DOCUMENTS INCORPORATED BY REFERENCE

None.

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As previously disclosed on July 12, 2019, Ohr Pharmaceutical, Inc., a Delaware corporation ("Ohr"), completed a Merger with NeuBase Therapeutics, Inc., a Delaware corporation ("Legacy NeuBase"), in accordance with the terms of the Agreement and Plan of Merger Reorganization (the "Merger Agreement") entered into on January 2, 2019. Pursuant to the Merger Agreement, (i) a subsidiary of Ohr merged with and into Legacy NeuBase, with Legacy NeuBase (renamed as "NeuBase Corporation") continuing as a wholly-owned subsidiary of Ohr and the surviving corporation of the merger and (ii) Ohr was renamed as "NeuBase Therapeutics, Inc." (the "Merger").

For accounting purposes, the Merger is treated as a "reverse asset acquisition" under generally accepted accounting principles in the United States ("U.S. GAAP") and Legacy NeuBase is considered the acquirer. Accordingly, Legacy NeuBase's historical results of operations will replace the Company's (as defined below) historical results of operations for all periods prior to the Merger and, for all periods following the Merger, the results of operations of the combined company will be included in the Company's financial statements.

This Annual Report on Form 10-K (this "Form 10-K") relates to the Company's fiscal year ended September 30, 2020 and is therefore the Company's fifth periodic report that includes results of operations for the combined company, including Legacy NeuBase.

Unless the context otherwise requires, references to the "Company," the "combined company," "we," "our" or "us" in this report refer to NeuBase Therapeutics, Inc. and its subsidiaries, references to "NeuBase" refer to the Company following the completion of the Merger and references to "Ohr" refer to the Company prior to the completion of the Merger.

Except as otherwise noted, references to "common stock" in this report refer to common stock, par value $0.0001 per share, of the Company.

PART I.

Cautionary Note Regarding Forward-Looking Statements

This Form 10-K contains "forward-looking statements" that involve risks and uncertainties, as well as assumptions that, if they never materialize or prove incorrect, could cause our results to differ materially and adversely from those expressed or implied by such forward-looking statements. The forward-looking statements are contained principally in Item 1—"Business," Item 1.A—"Risk Factors" and Item 7—"Management's Discussion and Analysis of Financial Condition and Results of Operations", but appear throughout the Form 10-K. Examples of forward-looking statements include, but are not limited to our expectations, beliefs or intentions regarding our potential product offerings, business, financial condition, results of operations, strategies or prospects and other matters that do not relate strictly to historical facts or statements of assumptions underlying any of the foregoing. These statements are often identified by the use of words such as "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "ongoing," "opportunity," "plan," "potential," "predicts," "seek," "should," "will," or "would," and similar expressions and variations or negatives of these words. These forward-looking statements are based on the expectations, estimates, projections, beliefs and assumptions of our management based on information currently available to management, all of which are subject to change. Such forward-looking statements are subject to risks, uncertainties and other factors that are difficult to predict and could cause our actual results and the timing of certain events to differ materially and adversely from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified below and those discussed under Item 1.A —"Risk Factors" in this Form 10-K. Furthermore, such forward-looking statements speak only as of the date of this Form 10-K. We undertake no obligation to update or revise publicly any forward-looking statements to reflect events or circumstances after the date of such statements for any reason, except as otherwise required by law.

ITEM 1. BUSINESS

Overview

NeuBase Therapeutics, Inc. (the "Company", "we", "us" and "our") is a biotechnology company accelerating the genetic revolution using a new class of synthetic medicines. Our modular peptide-nucleic acid antisense oligo ("PATrOL™") platform which outputs "anti-gene" candidate therapies is designed to combine the specificity of genetic sequence-based target recognition with a modularity that enables use of various *in vivo* delivery technologies to enable broad and also selective tissue distribution capabilities. Given that every human disease may have a genetic component, we believe that our differentiated platform technology has the potential for broad impact by increasing, decreasing, or changing gene function at either the DNA or RNA levels to resolve the progression to disease, as appropriate, in a particular indication. We plan to use our platform to address diseases driven by a genetic abnormality and we are initially focused on Huntington's disease ("HD") and myotonic dystrophy type 1 ("DM1").

Mutated proteins resulting from errors in deoxyribonucleic acid ("DNA") sequences cause rare genetic diseases and cancer. DNA in each cell of the body is transcribed into pre-messenger ribonucleic acid ("pre-mRNA"), which is then processed (spliced) into mRNA, which is exported into the cytoplasm of the cell and translated into a protein. This is termed the "central dogma" of biology. Therefore, when errors in a DNA sequence occur, they are often propagated into RNAs and can produce a damaging protein.

We are developing "anti-gene" therapies. Anti-genes are similar, but distinct, from antisense oligonucleotides (ASOs). ASOs are short single strands of nucleic acids (traditionally thought of as single-stranded RNA molecules) which bind to defective RNA targets in cells and inhibit their ability to form defective proteins. We believe we are a leader in the discovery and development of this new class of anti-gene drugs derived from peptide-nucleic acids ("PNAs"). The key differentiator between ASOs and anti-genes is that the scaffold is not derived from a natural sugar-phosphate nucleic acid backbone, rather is a synthetic polyamide which is charge-neutral (and thus high affinity to allow invasion of double-stranded targets), semi-rigid, and apparently non-biodegradable and immunologically inert. These features provide potential advantages over ASOs and other genetic therapies for modulating disease-causing genes including increased unique target opportunities, improved target specificity and a reduction in both sequence-dependent and independent toxicities. In addition, as these anti-genes are manufactured via standard peptide synthesis methods, they efficiently leverage the advancements in the synthetic peptide industry to enable modulating pharmacophore delivery, pharmacokinetics, sub-cellular placement and endosomal escape.

In addition to the scaffold, we also have a kit of natural nucleobases, chemically modified nucleobases which add further precision to a nucleic acid target of interest, and proprietary bi-specific nucleobases which can be added to the scaffold to allow precise target engagement. These bi-specific nucleobases, in particular, can be used in any combination to more specifically access double stranded DNA targets and RNA targets comprised of secondary structures such as hairpins (double stranded RNA targets which are folded upon themselves). This allows us to potentially access regions of the target transcript which may be unique in secondary structure to allow enhanced selectivity for the target (mutant) RNA as compared to the normal RNA. Enhanced selectivity for mutant RNAs as compared to normal RNAs is critical as normal RNAs are likely required for effective functioning of the cell. These bi-specific nucleotides can also target genomic loci and microRNAs in their double-stranded form.

A third component of the modular platform is the ability to add delivery technology to the pharmacophores so as to reach a desired cell or tissue upon*in vivo* administration. There is flexibility to append various delivery technologies to the pharmacophore to allow either broad tissue distribution or narrow cell and/or tissue targeting if so desired based on targets. One such technology is a chemical moiety that can be used to decorate the scaffold directly and allows the anti-genes to penetrate cell membranes and into subcellular compartments where they act as well as to distribute throughout the body when administered systemically.

Finally, in addition to the scaffold, modified nucleobases and delivery technology, the platform toolkit also includes linker technology which, when added to both ends of the PNAs, allow cooperative binding between individual drug molecules once they are engaged with the target RNA to form longer and more tightly bound drugs.

This toolkit of components forms the PATrOL™ platform and allows us to manufacture gene and transcript-specific anti-genes.

We are currently focused on therapeutic areas in which we believe our drugs will provide the greatest benefit with a significant market opportunity. We intend to utilize our technology to build out a pipeline of custom designed therapeutics for additional high-value disease targets. We are developing several preclinical programs using our PATrOL™ platform, including the NT0100 program, targeted at Huntington's disease ("HD"), a repeat expansion disorder, and the NT0200 program, targeted at myotonic dystrophy, type 1 ("DM1"). Preclinical studies are being conducted to evaluate the PATrOL™ platform technology and program candidates in the areas of pharmacokinetics, pharmacodynamics and tolerability. We reported results from certain of those studies in the first calendar quarter of 2020 and have extended upon certain of those studies in the fourth calendar quarter of 2020 which illustrated that our anti-gene technology can be administered to human patient-derived cell lines and systemically (via intravenous (IV) administration) into animals with DM1 (a genetically modified model accepted as representative of the human disease) and can resolve the causal genetic defect. We expect to present additional results from ongoing preclinical studies evaluating the PATrOL ™ platform and pipeline indications in the first half of calendar 2021, begin IND enabling studies in one or more of our programs in calendar year 2021 and begin a clinical trial in one or more of our programs in calendar 2022. See "Management's Discussion and Analysis of Financial Condition and Results of Operations—Recent Developments" on page 85 of this Form 10-K for additional detail regarding certain of our preclinical studies. In addition, the emerging pipeline of other assets that target primary and secondary RNA structure and genomic DNA allows a unique market advantage across a variety of rare diseases and oncology targets.

Overall, using our PATrOL™ platform, we believe we can create anti-gene therapies that have distinct advantages over other chemical entities currently in the market or in development for genetic medicine applications to modulate mutant genes and resolve a clinical trait or disorder. These advantages may differ by indication and can include, among others:

- increased unique target opportunities, improved target specificity and a reduction in both sequence-dependent and independent toxicities by virtue of a synthetic polyamide scaffold which is charge-neutral (and thus high affinity to allow invasion of double-stranded targets) and semi-rigid which imparts precision to target engagement, and are apparently immunologically inert to not aggregate via charge-based interaction in vivo;
- potentially long durability by nature of the non-biodegradable polyamide scaffold;
- our anti-genes are manufactured via standard peptide synthesis methods and thus they efficiently leverage advances in the synthetic peptide industry to enable facile addition of known moieties enabling modulating pharmacophore delivery, pharmacokinetics, sub-cellular placement and endosomal escape; and
- our anti-genes can uniquely target double stranded structures in DNA and RNA, which allow unique target opportunities that standard ASOs cannot access.

With these unique component parts and their advantages, our PATrOL™ platform-enabled anti-gene therapies can potentially address a multitude of rare genetic diseases and cancer, among other indications.

Business Strategy

We employ a rational approach to selecting disease targets, considering many scientific, technical, business and indication-specific factors before choosing each indication. We intend to build a diverse portfolio of therapies custom-designed to treat a variety of health conditions, with an initial emphasis on rare genetic diseases and cancers. A key component of this strategy is continuing to improve the scientific understanding and optimization of our platform technology and programs, including how various components of our platform technology perform, and our drug candidates impact the biological processes of the target diseases, so that we can utilize this information to reduce risk in our future programs and indications. In addition, with our expertise in discovering and characterizing novel anti-gene drugs, we believe that our scientists can optimize the properties of our PATrOL™-enabled drug candidates for use with particular targets that we determine to be of high value.

The depth of our knowledge and expertise with PNAs, bifacial and engineered nucleotides, genetics and genomics and therapeutic development of first-in-class modalities provides potential flexibility to determine the optimal development and commercialization strategy to maximize the near and longer-term value of our drug candidates.

We have distinct partnering strategies that we plan to employ based on the specific drug candidate, therapeutic area expertise and resources potential partners may bring to a collaboration. For some drug candidates, we may choose to develop and, if approved, commercialize them ourselves or through our affiliates. For other drug candidates, we may form single or multi asset partnerships leveraging our partners' global expertise and resources needed to support large commercial opportunities.

Industry Segment Background

Rare Genetic Diseases

Globally, there are thousands of genetic diseases, most of which lack any therapeutic options. In addition, rare genetic diseases are often particularly severe, debilitating or fatal. Traditionally, therapeutic development for each rare genetic disorder has been approached with a unique strategy, which is inefficient, as there are thousands of diseases that need treatment solutions. The collective population of people with rare diseases stands to benefit profoundly from the emergence of a scalable and modular treatment development platform that allows for a more efficient discovery of drug product candidates to address these conditions cohesively.

Mutated proteins resulting from errors in deoxyribonucleic acid ("DNA") sequences cause many rare genetic diseases and cancer. DNA in each cell of the body is transcribed into pre-RNA, which is then processed (spliced) into mRNA which is exported into the cytoplasm of the cell and translated into protein. This is termed the "central dogma" of biology. Therefore, when errors in a DNA sequence occur, they are propagated to RNAs and can become a damaging protein.

Conceptually, we have learned that ASOs can inactivate target RNAs before they can produce harmful proteins by binding them in a sequence-specific manner, which can delay disease progression or even eliminate genetic disease symptoms. ASOs designed by others to target known disease-related mutant RNA sequences have been shown to be able to degrade these transcripts and have a positive clinical impact. Similarly, applications in modifying splicing of pre-RNA in the nucleus of the cell have been developed by others to exclude damaging exons from the final mRNA product and have been approved by the Food and Drug Administration ("FDA"). We plan to extend upon these conceptual breakthroughs by utilizing our first-in-class technology which we believe has significant benefits in certain application areas to better resolve a clinical disorder with well tolerated anti-gene therapies.

We believe the breadth of the PATrOL™ platform gives us the ability to potentially address a multitude of inherited genetic diseases. The technology may also allow us to target and inactivate gain-of-function and change-of-function mutations, and address targets in recessive disease and haploinsufficiencies by altering splicing to remove damaging exons/mutations or increasing expression of wild-type alleles by various means.

The gamma-modified scaffold, an optimized variant of which we utilize, has demonstrated preclinical*in vivo* efficacy in several applications which we believe can be translated across many targets and into humans. For example, in oncology the scaffold has reduced expression of an activated oncogene (the epidermal growth factor of the EGFR gene) and has modified gene regulation by targeting microRNAs to slow tumor growth. This scaffold has also demonstrated *in vivo* engagement with the double-stranded genome in studies done by others to perform *in vivo* single-base genome editing.

ASO Therapies

ASO therapies have been in development for several decades and are largely comprised of chemically modified, short-length RNA strands, commonly known as oligonucleotides. Oligonucleotides are comprised of a sequence of nucleotides—the building blocks of RNA and DNA—that are linked together by a negatively charged backbone of chemical bonds. In nucleic acid molecules that have not been modified for therapeutic use, the nucleotides are linked by phosphodiester ("PO") bonds. Such unmodified nucleic acid molecules are unsuitable for use as therapeutics, because they are rapidly degraded by enzymes called nucleases which are widely distributed in the human body, are rapidly cleared by the kidneys and are taken up poorly by targeted cells. The industry has employed chemical modifications of the nucleotides and PO bonds as well as other modifications that improve the stability, biodistribution and cellular uptake of nucleic acid therapeutics.

Challenges of Historical ASOs

ASOs can be highly specific to a singular RNA sequence, decreasing but not eliminating the chance of potentially toxic off-target sequence engagement effects. When possible and designed properly, ASOs target exactly one mutated RNA sequence, corresponding directly to the genetic disorder of interest. Because they are targeted selectively to one sequence (when a unique sequence is available in the transcriptome and not "buried" in a transcript's secondary structure), optimally constructed ASOs do not target any additional genes and thus potentially reduce the likelihood of adverse events or side effects. While they have great potential, in practice, ASOs have been constrained by several factors intrinsic to their composition, including some or all of the following factors:

- naked ASOs are not optimized for cell permeability, often requiring them to be delivered at high concentrations or using other modalities that lead to other therapeutic and development challenges;
- they fail to demonstrate consistently broad tissue distribution throughout the body, often localizing predominantly to the liver and kidneys when delivered systemically;
- they do not cross the blood-brain barrier, so they cannot access the central nervous system to address neurological disease without being delivered directly to the central nervous system via intrathecal injection;
- the negative charges on the backbone can trigger scavenger receptor mechanisms of clearance.

Peptide Nucleic Acids and Janus Bases

PNAs were first described in 1991 by Peter Nielson, Michael Egholm and Ole Buchardt. While these PNAs were shown to be able to bind nucleic acid strands in a sequence specific manner, this effect was not possible with targets comprised of both purines and pyrimidines. These first PNAs were also not water soluble, could not pass across cell membranes, and self-aggregated, leading to potential toxic accumulation of the drug and thus possible safety issues. Based on this early data, the PNA scaffold was modified at the alpha positions to add conformational homogeneity enabling binding with mixed purine/pyrimidine natural nuclear base targets and additionally to allow water solubility. This was the first step to enabling their therapeutic use.

In 1996, Neil Branda, Guido Kurtz and Jean-Marie Lehn published "JANUS WEDGES: a new approach towards nucleobase-pair recognition" in the journal Chemical

Communications. These bifacial nucleobases had the potential to open a double helix and bind to both strands at a genomic locus in a "triad" motif utilizing the maximum number of Watson-Crick interactions. An issue with these early bi-specific nucleotides was that they were not uniform in their size and thus could not be used together on a peptide scaffold to achieve the potential of binding both faces of an open DNA (or RNA) double helix. Chemical design of the sixteen possible Janus bases such that they could be used as nucleobase analogs in Watson-Crick base pairing across any locus of interest is a key innovation performed by Carnegie Mellon University in enabling their therapeutic potential.

PATrOL™ Technology Platform

Scaffold technology: The PATrOL™ platform is a novel technology that we believe has the potential to significantly improve upon standard ASO breakthroughs by combining the specificity of antisense approaches with the modularity and innovations in peptide synthesis and a deep functional motif knowledge-base. We term the output of this first-in-class technology platform "anti-gene" therapies. Some of the potential advantages of using our synthetic scaffold vs. ASO technologies include:

- Scaffold monomers each have only two stereoisomers, which can be selected with a single chemical modification at the chiral center, making it conformationally stable and enabling our manufacturing process to be scalable.

- Scaffold monomer has a neutral charge, thus facilitating the potential to intercalate (open up and insert) into double-stranded DNA and RNA structures, which we believe provides a unique advantage relative to other ASO chemistry in that its enables us to access mutations that are buried within secondary structures and thus inaccessible to other genetic medicines technologies. We believe this feature also allows us to more efficiently screen candidate compounds, potentially by an order of magnitude, which further enables scalability of our emerging pipeline.

- PATrOL™-enabled drugs are pre-organized into a right-handed helical conformation which meshes with double-stranded RNA molecules (namely hairpins) and thus have a higher potential binding affinity and higher potential to inhibit machinery related to the mechanism of action of our anti-genes (such as inhibiting ribosomal elongation, splice machinery engagement or transcription).

- PATrOL™-enabled therapeutic anti-gene candidates are highly modifiable in multiple locations. This modularity enables another level of rational design in which we can test performance of each module independently and then combine modules for the preferred anti-gene profile. For example, various delivery technologies can be utilized either to broadly target tissues throughout the body (as we have previously described in March 2020) or to more narrowly refine cell and tissue targets. Similarly, we believe the PK profile, endosomal escape kinetics and sub-cellular compartment localization can be modified by this capability.

- We believe our scaffolds are stable in circulation due to resistance against degradation as shown in previous studies with similar gamma-PNAs (Demidov VV, Potaman VN, Frank-Kamenetskii MD, Egholm M, Buchard O, Sönnichsen SH, Nielsen PE. Stability of peptide nucleic acids in human serum and cellular extracts. Biochem Pharmacol. 1994 Sep 15;48(6):1310-3. doi: 10.1016/0006-2952(94)90171-6. PMID: 7945427. andMcMahon BM, Mays D, Lipsky J, Stewart JA, Fauq A, Richelson E. Pharmacokinetics and tissue distribution of a peptide nucleic acid after intravenous administration. Antisense Nucleic Acid Drug Dev. 2002 Apr;12(2):65-70. doi: 10.1089/108729002760070803. PMID: 12074366.).

- PNAs have previously been shown to be "immunologically inert", and we believe that our anti-genes have this feature as they are similar in scaffold chemistry. These findings are described in the following studies and shown neither an innate immune response nor an acquired B or T cell response with single-dose or repeat dose exposure to the PNA: Yuan X, Ma Z, Zhou W, Niidome T, Alber S, Huang L, Watkins S, Li S. Lipid-mediated delivery of peptide nucleic acids to pulmonary endothelium. Biochem Biophys Res Commun. 2003 Feb 28;302(1):6-11. doi: 10.1016/s0006-291x(03)00058-5. PMID: 12593839; Upadhyay A, Ponzio NM, Pandey VN. Immunological response to peptide nucleic acid and its peptide conjugate targeted to transactivation response (TAR) region of HIV-1 RNA genome. *Oligonucleotides*. 2008;18(4):329-335. doi:10.1089/oli.2008.0152; Gao X, Shen X, Dong X, Ran N, Han G, Cao L, Gu B, Yin H. Peptide Nucleic Acid Promotes Systemic Dystrophin Expression and Functional Rescue in Dystrophin-deficient mdx Mice. Mol Ther Nucleic Acids. 2015 Oct 6;4(10):e255. doi: 10.1038/mtna.2015.27. Erratum in: Mol Ther Nucleic Acids. 2020 Sep 8;22:138-139. PMID: 26440599; PMCID: PMC4881755. Zeng Z, Han S, Hong W, Lang Y, Li F, Liu Y, Li Z, Wu Y, Li W, Zhang X, Cao Z. A Tat-conjugated Peptide Nucleic Acid Tat-PNA-DR Inhibits Hepatitis B Virus Replication In Vitro and In Vivo by Targeting LTR Direct Repeats of HBV RNA. Mol Ther Nucleic Acids. 2016 Mar 15;5(3):e295. doi: 10.1038/mtna.2016.11. PMID: 26978579; PMCID: PMC5014453. In addition to the body of literature describing the lack of an immune response in rodents, we have also tested our scaffold in non-human primates via single-dosed IV injection, and seen no innate immune response characterized by the immediate alternative complement pathway which is characteristic of ASOs and is reflected in humans by injection-site irritation and potential flu-like symptoms after systemic injection.

Delivery technology: In preclinical studies, our PATrOL™-enabled therapeutic candidates have shown potential advantages over ASOs. We believe that chief among these advantages are cell permeability and broad tissue distribution. These advantages would allow our PATrOL™ therapeutic candidates to potentially address a wide range of disorders affecting various organs and tissues with systemic or local administration.

In part, chemical modifications to the scaffold include an active moiety, which has been shown to be able to deliver payloads into cells through a process that appears to be both receptor-mediated and potentially endosome-independent (process coined "active translocation"). The preclinical study which is the genesis of a medicinal chemistry process by the academics at CMU over the course of more than a decade of research, was published in a peer reviewed publication in 1999 by Dr. Steven Dowdy's team (one of our Scientific Advisory Board members) (Schwarze SR, Ho A, Vocero-Akbani A, Dowdy SF. In vivo protein transduction: delivery of a biologically active protein into the mouse. Science. 1999 Sep 3;285(5433):1569-72. doi: 10.1126/science.285.5433.1569. PMID: 10477521.). These preclinical data describe how an active delivery moiety can traffic a payload of 120kD not only into most tissues, but also across the blood-brain barrier and into the cell bodies of neurons through all regions of the brain. In 2006, a team at CMU was the first to couple a similar active moiety to the scaffold of PNAs and show penetration through cell membranes (Dragulescu-Andrasi A, Rapireddy S, He G, Bhattacharya B, Hyldig-Nielsen JJ, Zon G, Ly DH. Cell-permeable peptide nucleic acid designed to bind to the 5'-untranslated region of E-cadherin transcript induces potent and sequence-specific antisense effects. J Am Chem Soc. 2006 Dec 20;128(50):16104-12. doi: 10.1021/ja063383v. PMID: 17165763.). This sequence of innovation has been further optimized by us to form the current generation of our targeting chemistry which enables in vivo IV administration of a single dose of our NT0200-series anti-gene candidate targeting the DM1 mutation and delivers the pharmacophore into skeletal muscle and the nucleus, and engages the target transcript, which resolved the causal defect within 24 hours of administration.

We continue to innovate on and optimize our delivery technologies and strategies so as to be able to deliver anti-gene pharmacophores with narrowed cell-type specificity as there are use-cases where this may be desirable.

Nucleobase technology: With our proprietary modular technology, we can design therapies with our synthetic scaffold onto which are coupled natural or modified nucleobases. These scaffold monomers, often each coupled to the proprietary delivery technology moiety, are manufactured by us and/or our suppliers. In addition to being able to create these cell-permeable broadly distributed monomers and resultant oligomerized scaffolds that contain natural nucleobases, we have licensed proprietary engineered nucleobases (including bi-specific “Janus” bases) exclusively from CMU which can also be coupled to monomer precursors. With these cell permeable monomers forming the basis of the platform, they can be linked together to form oligomers of any sequence composition, matching a genetic target of interest. We believe that the modular components (i.e. the “monomers”) make the platform highly scalable for manufacturing purposes, thus enabling a more efficient discovery of drug product candidates for mutant gene silencing than traditional methods.

We believe we are the first and only company to successfully create Janus bases, engineered nucleic acids that target double-stranded RNA and potentially DNA by engaging both strands at once. The concept of Janus bases was first conceived nearly two decades ago but had not yet been realized due to the difficulty in chemical process development and the re-engineering required to allow the bifacial bases to have equal size – key considerations in creating tightly binding triple helices (or triads). A team of scientists has co-invented sixteen different Janus bases to interface with every possible combination of sixteen canonical and non-canonical nucleobase pairs that could occur in target DNA and RNA. Janus bases can be combined in various combinations to bind in a sequence-specific manner to secondary and tertiary RNA structures, whereas traditional ASOs generally cannot, and thus many sequences have heretofore not been targetable. This gives us the ability to expand the applicability of ASOs beyond their current capabilities as our anti-genes are not limited to regions of DNA and RNA that are free of secondary structure and thus potentially opens up a multitude of additional sequence targets. Our approach can also potentially be utilized for DNA therapeutics such as have been shown with a gamma-modified PNA scaffold in *in vivo* single base genome editing and potentially in DNA-based gene regulation.

We have licensed proprietary technology from CMU, which comprises some of the modular elements of the PATrOL™ platform such as chemically engineered bi-specific Janus nucleobases against not only canonical base pairs (A-T or C-G hydrogen bonding), but also non-canonical binding, which allows targeting of RNA hairpins where the double-stranded RNA cannot bind to itself due to a mismatch, but that mismatch can be bound and stabilized by the non-canonical bifacial nucleotide. The elegance of this approach is the combination of the non-charged peptide scaffold that does not cause repulsion when near a negatively charged DNA or RNA double helix with the proprietary bifacial nucleotides of uniform size. This combination is particularly powerful at the RNA level in addressing RNA hairpins with non-canonical bases to stabilize them and potentially eliminate the ability of target transcripts to be translated. The following **Figure 1** illustrates the concept of how our chemically engineered bi-specific nucleobases tethered to a scaffold can intercalate into the double-stranded RNA and assume a stable and sterically appropriate triple helix. The technology was developed over the course of almost a decade, and we believe it is unique to us, allowing us to target RNA secondary structures either by opening them up via our gamma-PNA technology, thus allowing sequence-specific selectivity of targets that have been largely not addressable to competing RNA silencing technologies.

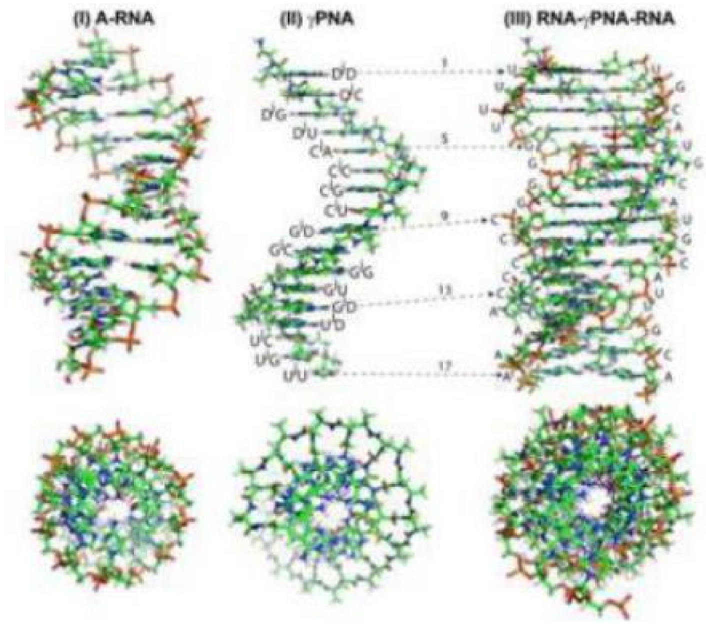

Figure 1. Simulations of a bi-specific Janus base binding to an RNA duplex containing the corresponding base-pairs illustrating the pre-organized right-handed structure of the gamma-PNA and the steric uniformity of the bifacial nucleotides.

While traditional ASOs can be long (*i.e.*, 16-mers or longer), PATrOL™-enabled anti-gene therapies can be smaller due to higher binding affinity and the use of bi-specific nucleobases (which have twice as many hydrogen bonds as standard nucleobases), potentially allowing them to better reach target tissues and disseminate more evenly within subcellular compartments. As a result of their potential better capability to disperse through many body tissues, PATrOL™-enabled therapies have the potential to address whole-body symptoms of diseases that manifest in multiple organ systems.

Product Pipeline

NT0100 Program - PATrOL™ Enabled Anti-Gene for Huntington’s Disease

HD is a devastating rare neurodegenerative disorder. After onset, symptoms such as uncontrolled movements, cognitive impairments and emotional disturbances worsen over time. HD is caused by toxic aggregation of mutant huntingtin protein, leading to progressive neuron loss in the striatum and cortex of the brain. The wild-type huntingtin gene (*HTT*) has a region in which a three-base DNA sequence, CAG, is repeated many times. When the DNA sequence CAG is repeated 26 or fewer times in this region, the resulting protein behaves normally. While the wild-type function of HTT protein is largely uncharacterized, it is known to be essential for normal brain development. When the DNA sequence CAG is repeated 40 times or more in this region, the resulting protein becomes toxic and causes HD. Every person has two copies, or alleles, of the *HTT* gene. Only one of the alleles (the “mutant” allele) needs to bear at least 40 CAG repeats for HD to occur. HD is one of many known repeat expansion disorders, which are a set of genetic disorders caused by a mutation that leads to a repeat of nucleotides exceeding the normal threshold. Current therapies for patients with HD can only manage individual symptoms. There is no approved therapy that has been shown to delay or halt disease progression. There are approximately 30,000 symptomatic patients in the U.S. and more than 200,000 at-risk of inheriting the disease globally.

One especially important advantage of the PATrOL™ platform that makes it promising for the treatment of repeat expansion disorders like HD is the ability of our small anti-genes to potentially target the RNA hairpin. As the number of repeats increases, the PATrOL™ anti-genes bind more tightly to each other and the mutant RNA. This allows our therapies to potentially inactivate mutant *HTT* mRNA before it can be translated into harmful protein via selective binding to the expanded CAG repeats while leaving the normal *HTT* mRNA largely unbound to drug and producing functional protein. Achieving mutant allele selectivity would be a key advantage for any RNA-based approach aiming to treat HD. In March of 2020 we illustrated the ability of our anti-gene technology to enrich for translational inhibition and resultant mutant protein in human patient-derived cell lines versus wild-type HTT alleles. We illustrated that our anti-genes can inhibit ribosomal elongation via a high-affinity binding. The PATrOL™-enabled NT0100 program is currently in preclinical development for the treatment of HD.

NT0200 Program- PATrOL™ Enabled Anti-Gene for Myotonic Dystrophy Type 1

Our pipeline also contains a second potentially transformative medicine, which we believe has significant potential for DM1, a severe and rare trinucleotide repeat disease. DM1 is a multisystem disorder that primarily affects skeletal, cardiac and smooth muscle, as well as the brain. DM1 is caused by expansion of a CUG trinucleotide repeat in the 3' untranslated region (UTR), a noncoding region of the myotonic dystrophy protein kinase gene (*DMPK*) transcript, which captures and sequesters protein that have critical functions in the nucleus related to appropriate splicing of hundreds of transcripts. These sequestered proteins cannot then fulfill their normal functions. In addition, it has been documented that sequestration of the mutant transcripts in the nucleus results in their inability to be translated and results in haploinsufficiency, a situation where 50% of the protein in not enough to maintain normal function. Mice with both copies of their *DMPK* gene knocked out manifest a cardiac conduction defect (Berul CI, Maguire CT, Aronovitz MJ, Greenwood J, Miller C, Gehrmann J, Housman D, Mendelsohn ME, Reddy S. DMPK dosage alterations result in atrioventricular conduction abnormalities in a mouse myotonic dystrophy model. J Clin Invest. 1999 Feb;103(4):R1-7. doi: 10.1172/JCI5346. PMID: 10021468; PMCID: PMC408103.) and a CNS phenotype characterized by abnormal long-term potentiation (Schulz PE, McIntosh AD, Kasten MR, Wieringa B, Epstein HF. A role for myotonic dystrophy protein kinase in synaptic plasticity. J Neurophysiol. 2003 Mar;89(3):1177-86. doi: 10.1152/jn.00504.2002. Epub 2002 Nov 13. PMID: 12612014.) hypothesized to be due to inappropriate cytoskeletal remodeling. We propose that our mechanism of action is via direct engagement of our anti-gene with the expanded CUG repeat hairpin structure in the 3' UTR of mutant transcript, invasion and opening of the hairpin structure, and release of the sequestered CUG-repeat binding proteins. This release of sequestered proteins which are normally involved in developmentally appropriate pre-mRNA splicing in the nucleus resolves the generalized splice defect and thus the major causal event. Our DM1 anti-gene is designed to not specifically degrade the mutant transcript, rather to release these RNA-protein aggregates through steric displacement, which could also resolve any haploinsufficiency and as a result may improve endophenotypes of the clinical condition, such as in the heart and brain (contingent on delivering effective concentrations of anti-gene to these tissues).

DM1 is characterized clinically by myotonia (inability to relax a muscle after contraction), muscle weakness, muscle wasting and a CNS endophenotype that is characterized by and is confirmed by molecular genetic testing of *DMPK* trinucleotiode repeat expansion. CTG repeat length (in the genome) exceeding 34 repeats is abnormal and often patients have hundreds or thousands of repeat units. Molecular genetic testing detects pathogenic variants in nearly 100% of affected individuals. It is estimated that the global prevalence of DM1 is 1 in 20,000 individuals. Our recent data illustrates that we are able to systemically deliver our anti-genes intravenously in DM1 genetic mouse models, engage the target in the skeletal muscles of the animals, and induce rescue of the causal splice defects.

Additional Indications

In addition, we are in the process of building an early stage pipeline of other therapies that focus on the unique advantages of our technology across a variety of diseases with an underlying genetic driver.

Intellectual Property

The initial intellectual property position behind our fundamental PATrOL™ technology was initially developed at CMU. Our success depends, in part, on our ability to obtain patent protection for our product candidates in the United States and other countries. We have exclusively licensed patent applications, pursuant to our license agreement with CMU (the "CMU License Agreement"), protecting our platform for development and commercialization of therapeutics. We will focus our resources on obtaining patents and filing new patent applications that drive value.

We have an exclusive license to patent applications pursuant to the CMU License Agreement that may provide exclusivity for product candidates in our pipeline and may provide exclusivity for our core technology. Our core technology patent applications are directed to chemically-modified nucleosides and peptide nucleic acids to form compounds of biological and clinical interest. We have exclusively licensed patent applications pursuant to the CMU License Agreement to cover 16 Janus bases and treatment of repeat expansion disorders using this technology.

Peptide Nucleic Acids containing Modified Nucleobases

We have exclusively licensed patent applications pursuant to the CMU License Agreement covering peptide nucleic acid oligomers containing modified nucleobases, which can be used as a basis for therapeutics. Nucleosides and chemically modified nucleosides are the basic building blocks of our drug development platform. Therefore, claims that cover an oligonucleotide incorporating one of our proprietary modified nucleosides may apply to a wide array of mechanisms of action and therapeutic targets. Our modified nucleobases may comprise a divalent nucleobase in sequence with several other divalent nucleobases to create a PNA.

We have filed patent applications in this category in the United States and pursuant to the Patent Cooperation Treaty.

Methods of Producing Peptide Nucleic Acids with Modified Nucleobases

We have exclusively licensed a patent (with an estimated expiration date of April 11, 2034) in the United States pursuant to the CMU License Agreement disclosing a method of manufacturing a peptide nucleic acid oligomer containing a modified nucleobase. We have exclusively licensed a provisional patent application (with an estimated expiration date of March 21, 2040) in the United States pursuant to the CMU License Agreement disclosing a method of synthesis of LH and RH gamma PNA monomers with on-resin sidechain functionalization.

Use of Peptide Nucleic Acids to Disrupt RNA Structure

We have exclusively licensed a provisional patent application (with an estimated expiration date of June 7, 2039) in the United States pursuant to the CMU License Agreement covering use of a peptide nucleic acid oligomer for disrupting a target RNA structure, to prevent translation of a target protein.

Use of Peptide Nucleic Acids to Treat Repeat Expansion Disorders

We have exclusively licensed patent applications (with an estimated expiration date of February 22, 2040) in the United States pursuant to the CMU License Agreement covering the use of a peptide nucleic acid oligomer for the treatment of repeat expansion disorders, including, for example, HD and DM1.

Patent Portfolio

We plan to seek patent protection in significant markets and/or countries for each product to be developed. We also seek to maximize patent terms. In some cases, the patent term can be extended to recapture a portion of the term lost during the U.S. Food and Drug Administration (the "FDA") regulatory review. The patent exclusivity period for a drug may deter generic drugs from entering the market. Patent exclusivity depends on a number of factors including initial patent term and available patent term extensions based upon delays caused by the regulatory approval process. We also rely on trade secrets, proprietary know-how and continuing technological innovation to develop and maintain a competitive position in our field.

While we have obtained patents and have patent applications pending, the extent of effective patent protection in the United States and other countries is highly uncertain. No consistent policy addresses the breadth of claims allowed in or the degree of protection afforded under patents of medical and pharmaceutical companies. Patents we currently own or may obtain might not be sufficiently broad to protect us against competitors with similar technology. Any of our patents could be invalidated or circumvented.

The holders of competing patents could determine to commence a lawsuit against us and may even prevail in any such lawsuit. Litigation could result in substantial cost to and diversion of effort by us, which may harm our business. In addition, our efforts to protect or defend our proprietary rights may not be successful or, even if successful, may result in substantial cost to us.

License Agreement with Carnegie Mellon University

On December 17, 2018, we entered into the CMU License Agreement. Under the CMU License Agreement, CMU granted us an exclusive, worldwide right to the PATrOL™ technology. Our exclusive, worldwide right to the PATrOL™ technology is subject to CMU's right (which is exercisable only upon our written consent) to grant a non-exclusive license to a third party as a means of resolving disputes or to settle claims arising out of allegations that the licensed technology under the CMU License Agreement infringes upon the intellectual property rights of such third party.

As partial consideration for the license right, we issued and delivered to CMU 835,625 shares of our common stock. Further, as partial consideration for the license right, we issued a warrant to CMU, and CMU exercised such warrant prior to the effective time of the Merger (as defined below) for an aggregate of 103,787 shares of our common stock. Under the CMU License Agreement, CMU has preemptive rights with respect to certain future sales of securities by us for capital-raising purposes, "piggyback" registration rights and co-sale rights with respect to certain resales of shares by our stockholders.

Pursuant to the CMU License Agreement, we paid CMU a one-time payment of approximately $54,000 for patenting and other intellectual property protection costs incurred by CMU prior to the effective date of the CMU License Agreement and relating to the licensed technology thereunder. Further, we must achieve certain milestones to demonstrate certain developments of the licensed product. We may obtain one 6-month extension to meet each milestone by making a nominal payment to CMU. Further, subject to certain conditions, we will pay to CMU royalties at a low single-digit percentage of aggregate annual net sales of licensed products and a percentage at the higher range of the bottom third of sublicensing fees.

The term of the CMU License Agreement concludes at the end of 20 years from its effective date or on the expiration date of the last-to-expire patent licensed, whichever comes later, unless otherwise terminated. The CMU License Agreement may be terminated (or the exclusivity of the license may be terminated) before the term due to customary payment default and fundamental change default provisions and failure of performance obligations. In addition, CMU may terminate the CMU License Agreement if we or our affiliates challenge the validity of the intellectual property licensed thereunder in a judicial or administrative proceeding. In the event we or our affiliates successfully challenge the validity of the intellectual property licensed thereunder, the royalties payable to CMU increase by a single digit percentage. We may terminate the CMU License Agreement upon payment of termination fees, the amounts of which depend on the date of such termination, but only if at the time of such termination, a licensed patent contains a valid claim. If not earlier terminated, at the expiration of the term, the rights and licenses granted to us by CMU survive in perpetuity, subject to our compliance with indemnification and dispute resolution obligations.

Manufacturing

We currently manufacture our starting materials both in-house and by using third-party suppliers and our research-scale final products both in-house and externally. We intend to rely on third parties for larger scale manufacturing going forward. We do not have any current contractual arrangements for the manufacture of commercial supplies of any of our product candidates that we may develop. We currently employ internal resources and third-party consultants to manage our manufacturing contractors.

Sales and Marketing

We have not yet defined our sales, marketing or product distribution strategy for any of our future product candidates. Our commercial strategy may include the use of strategic partners, distributors, a contract sale force, or the establishment of our own commercial and specialty sales force, as well as similar strategies for regions and territories outside the United States. We plan to further evaluate these alternatives when it approaches approval for the use of our product candidates for one or more indications.

Competition

The biotechnology industry is highly competitive and involves a high degree of risk. Potential competitors in the United States and worldwide are numerous and include pharmaceutical and biotechnology companies, educational institutions and research foundations. We compete with many of these companies who, either alone or with their strategic partners, have far greater experience, capital resources, research and technical resources, marketing experience, clinical trial experience, research and development staffs and facilities than we do. Some of our competitors may develop and commercialize products that compete directly with our product candidates, and they may introduce products to market earlier than our products or on a more cost-effective basis. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and also, in the future, to recruit clinical trial sites and subjects for our clinical trials.

We expect any products that we develop and commercialize to compete on the basis of, among other things, efficacy, safety, price and the availability of reimbursement from government and other third-party payors. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are viewed as safer, more effective, more convenient or less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their competing products more rapidly than we may obtain approval for any of our product candidates, which could result in our competitors establishing a strong market position before we are able to enter the market.

There are currently no approved treatments available to slow the progression of HD. Based on publicly available information, Roche and Ionis have an investigational drug in Phase III clinical development, and several companies have ongoing clinical and preclinical programs targeting the underlying disease in HD, including Wave Life Sciences, LTD., Sangamo Biosciences, ProQR, Nuredis, UniQure, Spark Therapeutics, PTC Therapeutics, Triplet Therapeutics, and Voyager Therapeutics. We are aware that a number of other companies are developing drugs focused on treating the symptoms associated with HD, including Teva Pharmaceutical Industries (Phase II), Prana Biotechnology (Phase II), Omeros Corporation (Phase II), and Azevan Pharmaceuticals (Phase II), among others.

There are no disease-modifying treatments available for DM1. Based on publicly available information, we are aware of several companies actively pursuing preclinical and clinical development on various approaches to treat DM1 including: AMO Pharma, Avidity Biosciences, Dyne Therapeutics, Vertex, Triplet Therapeutics, Expansion Therapeutics, and Nuredis.

Reverse Stock Split

On January 18, 2019, following a special meeting of our stockholders, our board of directors approved a one-for-twenty reverse stock split of our issued and outstanding shares of common stock (the "Reverse Stock Split"). On January 23, 2019, we filed with the Secretary of State of the State of Delaware a Certificate of Amendment to our Certificate of Incorporation to effect the Reverse Stock Split. Our common stock began trading on a split-adjusted basis when the market opened on February 4, 2019. As a result of the Reverse Stock Split, the outstanding common stock decreased from 56,466,428 shares of common stock, par value $0.0001 per share, to 2,829,248 shares of common stock, par value $0.0001 per share.

Unless otherwise noted, impacted amounts and share information included in the financial statements and notes thereto, and elsewhere in this Form 10-K have been retroactively adjusted for the Reverse Stock Split as if such Reverse Stock Split occurred on the first day of the first period presented. Certain amounts in the financial statements, the notes thereto, and elsewhere in this Form 10-K, may be slightly different than previously reported due to rounding of fractional shares as a result of the Reverse Stock Split.

Merger

On July 12, 2019, Ohr Pharmaceutical, Inc., a Delaware corporation ("Ohr"), completed a merger with NeuBase Therapeutics, Inc., a Delaware corporation ("Legacy NeuBase"), in accordance with the terms of the Agreement and Plan of Merger Reorganization entered into on January 2, 2019 (the "Merger Agreement"). Pursuant to the Merger Agreement, (i) a subsidiary of Ohr merged with and into Legacy NeuBase, with Legacy NeuBase (renamed as "NeuBase Corporation") continuing as a wholly-owned subsidiary of Ohr and the surviving corporation of the merger and (ii) Ohr was renamed as "NeuBase Therapeutics, Inc." (the "Merger"). At the closing of the Merger, each outstanding share of Legacy NeuBase's capital stock was converted into the right to receive 1.019055643 shares of the Company's common stock. Shares of the Company's common stock commenced trading on the Nasdaq Capital Market under the ticker symbol "NBSE" as of market open on July 15, 2019. The Company's previous ticker symbol was "OHRP".

Unless otherwise noted, impacted amounts and share information included in the financial statements and notes thereto, and elsewhere in this Form 10-K have been retroactively adjusted for the Merger as if such Merger occurred on the first day of the first period presented. Certain amounts in the financial statements, the notes thereto, and elsewhere in this Form 10-K, may be slightly different than previously reported due to rounding of fractional shares as a result of the Merger.

Common Stock Offering

On April 30, 2020, the Company closed an underwritten public offering of 6,037,500 shares of its common stock (inclusive of 787,500 shares that were sold pursuant to the underwriters' full exercise of their option to purchase additional shares of the Company's common stock), at a price to the public of $6.00 per share. The Company received net proceeds from the offering of approximately $33.3 million, after deducting the underwriting discounts and commissions and other estimated offering expenses payable by the Company. The Company has used and intends to use the net proceeds from this offering for working capital and general corporate purposes and to advance the development of its product candidates and expand its pipeline.

Legacy Pre-Merger Programs

As a result of the Merger, our going-forward operations are primarily those of Legacy NeuBase. Pursuant to the Merger, we retained certain assets and technologies that were Ohr's assets and technologies before the consummation of the Merger. Despite our expectation that our primary operations will be those of Legacy NeuBase on a going-forward basis, we may choose to monetize legacy Ohr assets in the future. Previously, Ohr acquired the SKS Ocular 1 LLC sustained release technology, which was designed to develop best in class drug formulations for ocular disease (the "SKS Assets") and exclusive rights to an animal model for dry macular degeneration and rights to produce and use carboxyethylpyrrole ("CEP") for research, clinical and commercial applications (the "CEP Assets"). In September 2019, we terminated the licenses for the SKS Assets and the CEP Assets, as the Board determined there would be substantial costs associated with continuing to maintain such assets and attempts to monetize such assets would be a distraction to our management and other employees and an inefficient use of their time. We continue to retain an equity interest in DepYmed, Inc. ("DepYmed"), a joint venture that Ohr entered into with Cold Spring Harbor Laboratory in 2014. DepYmed is a preclinical stage company focused on Wilson's disease, Rett syndrome, and oncology applications. We also retain intellectual property which has been licensed to DepYmed and have no other ongoing obligations (monetary or otherwise) to DepYmed.

Governmental Regulation

Government authorities in the United States (including federal, state and local authorities) and in other countries, extensively regulate, among other things, the manufacturing, research and clinical development, marketing, labeling and packaging, storage, distribution, post-approval monitoring and reporting, advertising and promotion, pricing and export and import of pharmaceutical products, such as our product candidates. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. Moreover, failure to comply with applicable regulatory requirements may result in, among other things, warning letters, clinical holds, civil or criminal penalties, recall or seizure of products, injunction, disbarment, partial or total suspension of production or withdrawal of the product from the market. Any agency or judicial enforcement action could have a material adverse effect on us.

Food and Drug Administration Regulation and Marketing Approval

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act (the "FDCA"), and related regulations. Drugs are also subject to other federal, state and local statutes and regulations. Failure to comply with the applicable U.S. regulatory requirements at any time during the drug development process, approval process or after approval may subject an applicant to administrative or judicial sanctions and non-approval of product candidates. These sanctions could include the imposition by the FDA or an Institutional Review Board ("IRB") of a clinical hold on clinical trials, the FDA's refusal to approve pending applications or related supplements, withdrawal of an approval, untitled or warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, restitution, disgorgement, civil penalties or criminal prosecution. Such actions by government agencies could also require us to expend a large amount of resources to respond to the actions. Any agency or judicial enforcement action could have a material adverse effect on us.

The FDA and comparable regulatory agencies in state and local jurisdictions and in foreign countries impose substantial requirements upon the clinical development, manufacture and marketing of pharmaceutical products.

These agencies and other federal, state and local entities regulate research and development activities and the testing, manufacture, quality control, safety, effectiveness, labeling, packaging, storage, distribution, record-keeping, approval, post-approval monitoring, advertising, promotion, sampling and import and export of our products. Our drug candidates must be approved by the FDA through the New Drug Application ("NDA") process before they may be legally marketed in the United States.

The process required by the FDA before drugs may be marketed in the United States generally involves the following:

- completion of non-clinical laboratory tests, animal studies and formulation studies conducted according to good laboratory practice or other applicable regulations;

- submission of an Investigational New Drug application ("IND"), which allows clinical trials to begin unless the FDA objects within 30 days;

- adequate and well-controlled human clinical trials to establish the safety and efficacy of the proposed drug for its intended use or uses conducted in accordance with Good Clinical Practices ("GCPs"), which are international ethical and scientific quality standards meant to assure that the rights, safety and well-being of trial participants are protected, and to define the roles of clinical trial sponsors, administrators and monitors and to assure clinical trial data integrity;

- pre-approval inspection of manufacturing facilities and clinical trial sites; and

- FDA approval of an NDA, which must occur before a drug can be marketed or sold.

IND and Clinical Trials

Prior to commencing the first clinical trial, an IND, which contains the results of preclinical studies along with other information, such as information about product chemistry, manufacturing and controls and a proposed protocol, must be submitted to the FDA. The IND automatically becomes effective 30 days after receipt by the FDA unless the FDA within the 30-day time period raises concerns or questions about the conduct of the clinical trial. In such a case, the IND sponsor must resolve any outstanding concerns with the FDA before the clinical trial may begin. A separate submission to the existing IND must be made for each successive clinical trial to be conducted during drug development. Further, an independent IRB for each site proposing to conduct the clinical trial must review and approve the investigational plan for any clinical trial before it commences at that site. Informed written consent must also be obtained from each trial subject. Regulatory authorities, including the FDA, an IRB, a data safety monitoring board or the sponsor, may suspend or terminate a clinical trial at any time on various grounds, including a finding that the participants are being exposed to an unacceptable health risk or that the clinical trial is not being conducted in accordance with FDA requirements.

For purposes of NDA approval, human clinical trials are typically conducted in sequential phases that may overlap:

- *Phase I* - The drug is initially given to healthy human subjects or patients in order to determine metabolism and pharmacologic actions of the drug in humans, side effects and, if possible, to gain early evidence on effectiveness. During Phase I clinical trials, sufficient information about the investigational drug's pharmacokinetics and pharmacologic effects may be obtained to permit the design of well-controlled and scientifically valid Phase II clinical trials.

- *Phase II* - Clinical trials are conducted to evaluate the effectiveness of the drug for a particular indication or in a limited number of patients in the target population to identify possible adverse effects and safety risks, to determine the efficacy of the drug for specific targeted diseases and to determine dosage tolerance and optimal dosage. Multiple Phase II clinical trials may be conducted by the sponsor to obtain information prior to beginning larger and more expensive Phase III clinical trials.

- *Phase III* - When Phase II clinical trials demonstrate that a dosage range of the drug appears effective and has an acceptable safety profile, and provide sufficient information for the design of Phase III clinical trials, Phase III clinical trials in an expanded patient population at multiple clinical sites may be undertaken. They are performed after preliminary evidence suggesting effectiveness of the drug has been obtained, and are intended to further evaluate dosage, effectiveness and safety, to establish the overall benefit-risk relationship of the investigational drug and to provide an adequate basis for product labeling and approval by the FDA. In most cases, the FDA requires two adequate and well-controlled Phase III clinical trials to demonstrate the efficacy of the drug in an expanded patient population at multiple clinical trial sites.

- *Phase IV* - The FDA may require, or companies may pursue, additional clinical trials after a product is approved. These Phase IV clinical trials may be made a condition to be satisfied for continuing drug approval. The results of Phase IV clinical trials can confirm the effectiveness of a product candidate and can provide important safety information.

All clinical trials must be conducted in accordance with FDA regulations, GCP requirements and their protocols in order for the data to be considered reliable for regulatory purposes.

An investigational drug product that is a combination of two different drugs in the same dosage form must comply with an additional rule that requires that each component make a contribution to the claimed effects of the drug product. This typically requires larger studies that test the drug against each of its components. In addition, typically, if a drug product is intended to treat a chronic disease, as is the case with some of our product candidates, safety and efficacy data must be gathered over an extended period of time, which can range from six months to three years or more. Government regulation may delay or prevent marketing of product candidates or new drugs for a considerable period of time and impose costly procedures upon our activities.

Disclosure of Clinical Trial Information

Sponsors of clinical trials of FDA-regulated products, including drugs, are required to register and disclose certain clinical trial information. Information related to the product, patient population, phase of investigation, study sites and investigators, and other aspects of the clinical trial, is then made public as part of the registration. Sponsors are also obligated to discuss the results of their clinical trials after completion. Disclosure of the results of these trials can be delayed until the new product or new indication being studied has been approved. Competitors may use this publicly available information to gain knowledge regarding the progress of development programs.

The NDA Approval Process

In order to obtain approval to market a drug in the United States, a marketing application must be submitted to the FDA that provides data establishing to the FDA's satisfaction the safety and effectiveness of the investigational drug for the proposed indication. Each NDA submission requires a substantial user fee payment (exceeding $2.9 million in fiscal year 2020) unless a waiver or exemption applies. The application includes all relevant data available from pertinent non-clinical studies, or preclinical studies and clinical trials, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls and proposed labeling, among other things. Data can come from company-sponsored clinical trials intended to test the safety and effectiveness of a use of a product, or from a number of alternative sources, including studies initiated by investigators that meet GCP requirements.

During the development of a new drug, sponsors are given opportunities to meet with the FDA at certain points. These points may be prior to submission of an IND, at the end of Phase II clinical trials, and before an NDA is submitted. Meetings at other times may be requested. These meetings can provide an opportunity for the sponsor to share information about the data gathered to date, for the FDA to provide advice and for the sponsor and the FDA to reach agreement on the next phase of development. Sponsors typically use the end-of-Phase II clinical trials meetings to discuss their Phase II clinical trials results and present their plans for the pivotal Phase III registration trial that they believe will support approval of the new drug.

Concurrent with clinical trials, companies usually complete additional preclinical safety studies and must also develop additional information about the chemistry and physical characteristics of the drug and finalize a process for the NDA sponsor's manufacturing the product in compliance with Current Good Manufacturing Practice ("cGMP") requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and the manufacturer must develop methods for testing the identity, strength, quality and purity of the final drugs. Additionally, appropriate packaging must be selected and tested, and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf-life.

The results of drug development, non-clinical studies and clinical trials, along with descriptions of the manufacturing process, analytical tests conducted on the chemistry of the drug, proposed labeling and other relevant information are submitted to the FDA as part of an NDA requesting approval to market the product. The FDA reviews all NDAs submitted to ensure that they are sufficiently complete for substantive review before it accepts them for filing. It may request additional information rather than accept an NDA for filing. In this event, the NDA must be resubmitted with the additional information. The resubmitted application is also subject to review before the FDA accepts it for filing. The FDA has 60 days from its receipt of an NDA to conduct an initial review to determine whether the application will be accepted for filing based on the FDA's threshold determination that the application is sufficiently complete to permit substantive review. If the NDA submission is accepted for filing, the FDA reviews the NDA to determine, among other things, whether the proposed product is safe and effective for its intended use, and whether the product is being manufactured in accordance with cGMP to assure and preserve the product's identity, strength, quality and purity. The FDA has agreed to specific performance goals on the review of NDAs and seeks to review standard NDAs within 12 months from submission of the NDA. The review process may be extended by the FDA for three additional months to consider certain late submitted information or information intended to clarify information already provided in the submission. After the FDA completes its initial review of an NDA, it will communicate to the sponsor that the drug will either be approved, or it will issue a complete response letter to communicate that the NDA will not be approved in its current form and inform the sponsor of changes that must be made or additional clinical, non-clinical or manufacturing data that must be received before the application can be approved, with no implication regarding the ultimate approvability of the application or the timing of any such approval, if ever. If, or when, those deficiencies have been addressed to the FDA's satisfaction in a resubmission of the NDA, the FDA will issue an approval letter. The FDA has committed to reviewing such resubmissions in two to six months depending on the type of information included. The FDA may refer applications for novel drug products or drug products that present difficult questions of safety or effectiveness to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved and, if so, under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving an NDA, the FDA typically will inspect the facilities at which the product is manufactured. The FDA will not approve the product unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA, the FDA may inspect one or more clinical sites to assure compliance with GCP regulations. If the FDA determines the application, manufacturing process or manufacturing facilities are not acceptable, it typically will outline the deficiencies and often will request additional testing or information. This may significantly delay further review of the application. If the FDA finds that a clinical site did not conduct the clinical trial in accordance with GCP regulations, the FDA may determine the data generated by the clinical site should be excluded from the primary efficacy analyses provided in the NDA. Additionally, notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

The FDA may require, or companies may pursue, Phase IV clinical trials, which are additional clinical trials performed after a product is approved. Phase IV clinical trials may be made a condition to be satisfied for continuing drug approval. The results of Phase IV clinical trials can confirm the effectiveness of a product candidate and can provide important safety information. In addition, the FDA now has express statutory authority to require sponsors to conduct post-marketing trials to specifically address safety issues identified by the agency.

The FDA also has authority to require a Risk Evaluation and Mitigation Strategy ("REMS"), from manufacturers to ensure that the benefits of a drug outweigh its risks. A sponsor may also voluntarily propose a REMS as part of the NDA submission. The need for a REMS is determined as part of the review of the NDA. Based on statutory standards, elements of a REMS may include "dear doctor letters," a medication guide, more elaborate targeted educational programs, and in some cases elements to assure safe use ("ETASU"), which is the most restrictive REMS. ETASU can include, but are not limited to, special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring and the use of patient registries. These elements are negotiated as part of the NDA approval, and in some cases if consensus is not obtained until after the "review date" set forth under the Prescription Drug User Fee Act of 1992, as amended, the approval date may be delayed. Once adopted, REMS are subject to periodic assessment and modification.

Changes to some of the conditions established in an approved application, including changes in indications, labeling, manufacturing processes or facilities, require submission and FDA approval of a new NDA or NDA supplement before the change can be implemented. An NDA supplement for a new indication typically requires clinical data similar to that in the original application, and the FDA uses the same procedures and actions in reviewing NDA supplements as it does in reviewing NDAs.

Even if a product candidate receives regulatory approval, the approval may be limited to specific disease states, patient populations and dosages, or might contain significant limitations on use in the form of warnings, precautions or contraindications, or in the form of onerous risk management plans, restrictions on distribution or post-marketing trial requirements. Further, even after regulatory approval is obtained, later discovery of previously unknown problems with a product may result in restrictions on the product or even complete withdrawal of the product from the market. Delay in obtaining, or failure to obtain, regulatory approval for our products, or obtaining approval but for significantly limited use, would harm our business. In addition, we cannot predict what adverse governmental regulations may arise from future U.S. or foreign governmental action.

Orphan Designation and Exclusivity

The FDA may grant orphan drug designation to drugs intended to treat a rare disease or condition that affects fewer than 200,000 individuals in the United States, or if it affects more than 200,000 individuals in the United States and there is no reasonable expectation that the cost of developing and making the drug for this type of disease or condition will be recovered from sales in the United States.

Orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical study costs, tax advantages, and user-fee waivers. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. In addition, the first NDA or Biologics License Application ("BLA") applicant to receive orphan drug designation for a particular drug is entitled to orphan drug exclusivity, which means the FDA may not approve any other application to market the same drug for the same indication for a period of seven years in the United States, except in limited circumstances. Orphan drug exclusivity does not prevent the FDA from approving a different drug for the same disease or condition, or the same drug for a different disease or condition. Our initial two programs are targeting orphan indications.

The Hatch-Waxman Amendments

Under the Drug Price Competition and Patent Term Restoration Act of 1984, as amended, commonly known as the Hatch-Waxman Amendments, a portion of a product's U.S. patent term that was lost during clinical development and regulatory review by the FDA may be restored. The Hatch-Waxman Amendments also provide a process for listing patents pertaining to approved products in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations (commonly known as the Orange Book) and for a competitor seeking approval of an application that references a product with listed patents to make certifications pertaining to such patents. In addition, the Hatch-Waxman Amendments provide for a statutory protection, known as non-patent exclusivity, against the FDA's acceptance or approval of certain competitor applications.

Patent Term Restoration

Patent term restoration can compensate for time lost during drug development and the regulatory review process by returning up to five years of patent life for a patent that covers a new product or its use. This period is generally one-half the time between the effective date of an IND (falling after issuance of the patent) and the submission date of an NDA, plus the time between the submission date of an NDA and the approval of that application, provided the sponsor acted with diligence. Patent term restorations, however, cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval and only one patent applicable to an approved drug may be extended and the extension must be applied for prior to expiration of the patent. The United States Patent and Trademark Office, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration.

Orange Book Listing

In seeking approval for a drug through an NDA, applicants are required to list with the FDA each patent whose claims cover the applicant's product. Upon approval of a drug, each of the patents listed by the NDA holder listed in the drug's application or otherwise are then published in the FDA's Orange Book. Drugs listed in the Orange Book can, in turn, be cited by potential generic competitors in support of approval of an abbreviated new drug application ("ANDA"). An ANDA provides for marketing of a drug product that has the same active ingredients in the same strengths and dosage form as the listed drug and has been shown through bioequivalence testing to be therapeutically equivalent to the listed drug. Other than the requirement for bioequivalence testing, ANDA applicants are not required to conduct, or submit results of, preclinical studies or clinical trials to prove the safety or effectiveness of their drug product. Drugs approved in this way are commonly referred to as "generic equivalents" to the listed drug and can often be substituted by pharmacists under prescriptions written for the original listed drug.

The ANDA applicant is required to certify to the FDA concerning any patents listed for the approved product in the FDA's Orange Book. Specifically, the applicant must certify that: (1) the required patent information has not been filed; (2) the listed patent has expired; (3) the listed patent has not expired but will expire on a particular date and approval is sought after patent expiration; or (4) the listed patent is invalid or will not be infringed by the new product. The ANDA applicant may also elect to submit a Section VIII statement certifying that its proposed ANDA label does not contain (or carves out) any language regarding the patented method-of-use rather than certify to a listed method-of-use patent. If the applicant does not challenge the listed patents, the ANDA application will not be approved until all the listed patents claiming the referenced product have expired.

A certification that the new product will not infringe the already approved product's listed patents, or that such patents are invalid, is called a Paragraph IV certification. If the ANDA applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of the Paragraph IV certification to the NDA and patent holders once the ANDA has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV certification. The filing of a patent infringement lawsuit within 45 days of the receipt of a Paragraph IV certification automatically prevents the FDA from approving the ANDA until the earlier of 30 months, expiration of the patent, settlement of the lawsuit or a decision in the infringement case that is favorable to the ANDA applicant.

An applicant submitting an NDA under Section 505(b)(2) of the FDCA (a "Section 505(b)(2) NDA"), which permits the filing of an NDA where at least some of the information required for approval comes from studies not conducted by, or for, the applicant and for which the applicant has not obtained a right of reference, is required to certify to the FDA regarding any patents listed in the Orange Book for the approved product it references to the same extent that an ANDA applicant would.

Market Exclusivity

Market exclusivity provisions under the FDCA also can delay the submission or the approval of certain applications. The FDCA provides a five-year period of non-patent marketing exclusivity within the United States to the first applicant to gain approval of an NDA for a new chemical entity. A drug is a new chemical entity if the FDA has not previously approved any other new drug containing the same active moiety, which is the molecule or ion responsible for the action of the drug substance. During the exclusivity period, the FDA may not accept for review an ANDA or a Section 505(b)(2) NDA submitted by another company for another version of such drug where the applicant does not own or have a legal right of reference to all the data required for approval. However, an application may be submitted after four years if it contains a Paragraph IV certification. The FDCA also provides three years of marketing exclusivity for an NDA, a Section 505(b)(2) NDA or supplement to an existing NDA if new clinical investigations, other than bioavailability studies, that were conducted or sponsored by the applicant are deemed by the FDA to be essential to the approval of the application, for example, for new indications, dosages or strengths of an existing drug. This three-year exclusivity covers only the conditions associated with the new clinical investigations and does not prohibit the FDA from approving ANDAs for drugs containing the original active agent. Five-year and three-year exclusivity will not delay the submission or approval of a full NDA; however, an applicant submitting a full NDA would be required to conduct or obtain a right of reference to all of the non-clinical studies and adequate and well-controlled clinical trials necessary to demonstrate safety and effectiveness.

Post-Marketing Requirements.

Following approval of a new product, a pharmaceutical company and the approved product are subject to continuing regulation by the FDA, including, among other things, monitoring and record-keeping activities, reporting to the applicable regulatory authorities of adverse experiences with the product, providing the regulatory authorities with updated safety and efficacy information, product sampling and distribution requirements, and complying with promotion and advertising requirements, which include, among others, standards for direct-to-consumer advertising, restrictions on promoting drugs for uses or in patient populations that are not described in the drug's approved labeling (known as "off-label use"), limitations on industry-sponsored scientific and educational activities and requirements for promotional activities involving the internet, including social media. Although physicians may prescribe legally available drugs for off-label uses, manufacturers may not market or promote such off-label uses. Modifications or enhancements to the product or its labeling or changes of the site of manufacture are often subject to the approval of the FDA and other regulators, who may or may not grant approval, or may include in a lengthy review process.

Prescription drug advertising is subject to federal, state and foreign regulations. In the United States, the FDA regulates prescription drug promotion, including direct-to-consumer advertising. Prescription drug promotional materials must be submitted to the FDA in conjunction with their first use. Any distribution of prescription drug products and pharmaceutical samples must comply with the U.S. Prescription Drug Marketing Act of 1987, as amended, a part of the FDCA.

In the United States, once a product is approved, its manufacture is subject to comprehensive and continuing regulation by the FDA. The FDA regulations require that products be manufactured in specific, approved facilities and in accordance with cGMP. NeuBase relies, and expects to continue to rely, on third parties for the production of clinical and commercial quantities of our products in accordance with cGMP regulations. cGMP regulations require, among other things, quality control and quality assurance as well as the corresponding maintenance of records and documentation and the obligation to investigate and correct any deviations from cGMP. Drug manufacturers and other entities involved in the manufacture and distribution of approved drugs are required to register their establishments with the FDA and certain state agencies and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP and other laws. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain cGMP compliance. These regulations also impose certain organizational, procedural and documentation requirements with respect to manufacturing and quality assurance activities. NDA holders using contract manufacturers, laboratories or packagers are responsible for the selection and monitoring of qualified firms and, in certain circumstances, qualified suppliers to these firms. These firms and, where applicable, their suppliers are subject to inspections by the FDA at any time, and the discovery of violative conditions, including failure to conform to cGMP, could result in enforcement actions that interrupt the operation of any such product or may result in restrictions on a product, manufacturer, or holder of an approved NDA, including, among other things, recall or withdrawal of the product from the market.

The FDA also may require post-marketing testing, also known as Phase IV testing, REMS to monitor the effects of an approved product or place conditions on an approval that could restrict the distribution or use of the product. Discovery of previously unknown problems with a product or the failure to comply with applicable FDA requirements can have negative consequences, including adverse publicity, judicial or administrative enforcement, untitled or warning letters from the FDA, mandated corrective advertising or communications with doctors, withdrawal of approval, and civil or criminal penalties, among others. Newly-discovered or developed safety or effectiveness data may require changes to a product's approved labeling, including the addition of new warnings and contraindications, and also may require the implementation of other risk management measures. Also, new government requirements, including those resulting from new legislation, may be established, or the FDA's policies may change, which could delay or prevent regulatory approval of our products in development.

Reimbursement, Anti-Kickback and False Claims Laws and Other Regulatory Matters

In the United States, the research, manufacturing, distribution, sale and promotion of drug products and medical devices are potentially subject to regulation by various federal, state and local authorities in addition to the FDA, including the Centers for Medicare & Medicaid Services ("CMS"), other divisions of the U.S. Department of Health and Human Services (*e.g.*, the Office of Inspector General), the Drug Enforcement Administration, the Consumer Product Safety Commission, the Federal Trade Commission, the Occupational Safety & Health Administration, the Environmental Protection Agency, state Attorneys General and other state and local government agencies. For example, sales, marketing and scientific/educational grant programs must comply with the federal Anti-Kickback Statute, the federal False Claims Act, the privacy regulations promulgated under the Health Insurance Portability and Accountability Act of 1996, and similar state laws. Pricing and rebate programs must comply with the Medicaid Drug Rebate Program requirements of the Omnibus Budget Reconciliation Act of 1990, as amended, and the Veterans Health Care Act of 1992, as amended. If products are made available to authorized users of the Federal Supply Schedule of the General Services Administration, additional laws and requirements apply. The handling of any controlled substances must comply with the U.S. Controlled Substances Act and Controlled Substances Import and Export Act. Products must meet applicable child-resistant packaging requirements under the U.S. Poison Prevention Packaging Act. All of these activities are also potentially subject to federal and state consumer protection and unfair competition laws.

The Medicare Modernization Act ("MMA") established the Medicare Part D program ("Part D") to provide a voluntary prescription drug benefit to Medicare beneficiaries. Under Part D, Medicare beneficiaries may enroll in prescription drug plans offered by private entities which will provide coverage of outpatient prescription drugs. Unlike Medicare Part A (hospital insurance) and Part B (medical insurance), Part D coverage is not standardized. Part D prescription drug plan sponsors are not required to pay for all covered Part D drugs, and each drug plan can develop its own drug formulary that identifies which drugs it will cover and at what tier or level. However, Part D prescription drug formularies must include drugs within each therapeutic category and class of covered Part D drugs, though not necessarily all the drugs in each category or class. Any formulary used by a Part D prescription drug plan must be developed and reviewed by a pharmacy and therapeutic committee. Government payment for some of the costs of prescription drugs may increase demand for product candidates for which NeuBase receives regulatory approval. However, any negotiated prices for our product candidates covered by a Part D prescription drug plan will likely be lower than the prices we might otherwise obtain. Moreover, while the MMA applies only to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own payment rates. Any reduction in payment that results from the MMA may result in a similar reduction in payments from non-government payors.

The distribution of pharmaceutical products is subject to additional requirements and regulations, including extensive record-keeping, licensing, storage and security requirements intended to prevent the unauthorized sale of pharmaceutical products.

The American Recovery and Reinvestment Act of 2009 provides funding for the federal government to compare the effectiveness of different treatments for the same illness. A plan for the research will be developed by the Department of Health and Human Services, the Agency for Healthcare Research and Quality and the National Institutes for Health, and periodic reports on the status of the research and related expenditures will be made to Congress. Although the results of the comparative effectiveness studies are not intended to mandate coverage policies for public or private payors, it is not clear what effect, if any, the research will have on the sales of our product candidates, if any such product or the condition that it is intended to treat is the subject of a clinical trial. It is also possible that comparative effectiveness research demonstrating benefits in a competitor's product could adversely affect the sales of our product candidates, if approved. If third-party payors do not consider our products to be cost-effective compared to other available therapies, they may not cover our product candidates after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our product candidates on a profitable basis.

In addition, in some foreign countries, the proposed pricing for a drug must be approved before it may be lawfully marketed. The requirements governing drug pricing vary widely from country to country. For example, the European Union provides options for its member states to restrict the range of medicinal products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. A member state may approve a specific price for the medicinal product or it may instead adopt a system of direct or indirect controls on the profitability of the company placing the medicinal product on the market. There can be no assurance that any country that has price controls or reimbursement limitations for pharmaceutical products will allow favorable reimbursement and pricing arrangements for any of our products. Historically, products launched in the European Union do not follow price structures of the United States and generally tend to be priced significantly lower than in the United States.

As noted above, in the United States, we are subject to complex laws and regulations pertaining to healthcare "fraud and abuse," including, but not limited to, the federal Anti-Kickback Statute, the federal False Claims Act, and other state and federal laws and regulations. The federal Anti-Kickback Statute makes it illegal for any person, including a prescription drug manufacturer, or a party acting on its behalf, to knowingly and willfully solicit, receive, offer or pay any remuneration that is intended to induce the referral of business, including the purchase, order or prescription of a particular drug, or other good or service for which payment in whole or in part may be made under a federal healthcare program, such as Medicare or Medicaid. Violations of this law are punishable by up to five years in prison, criminal fines, administrative civil money penalties and exclusion from participation in federal healthcare programs. In addition, many states have adopted laws similar to the federal Anti-Kickback Statute. Some of these state prohibitions apply to the referral of patients for healthcare services reimbursed by any insurer, not just federal healthcare programs such as Medicare and Medicaid. Due to the breadth of these federal and state anti-kickback laws, the absence of guidance in the form of regulations or court decisions and the potential for additional legal or regulatory change in this area, it is possible that our future sales and marketing practices or our future relationships with medical professionals might be challenged under anti-kickback laws, which could harm us. Because we intend to commercialize product candidates that could be reimbursed under a federal healthcare program and other governmental healthcare programs, we plan to develop a comprehensive compliance program that establishes internal controls to facilitate adherence to the rules and program requirements to which we will or may become subject.

The federal False Claims Act prohibits anyone from knowingly presenting, or causing to be presented, for payment to federal programs (including Medicare and Medicaid) claims for items or services, including drugs, that are false or fraudulent, claims for items or services not provided as claimed or claims for medically unnecessary items or services. Although we would not submit claims directly to payors, manufacturers can be held liable under these laws if they are deemed to “cause” the submission of false or fraudulent claims by, for example, providing inaccurate billing or coding information to customers or promoting a product off-label. In addition, our future activities relating to the reporting of wholesaler or estimated retail prices for our products, the reporting of prices used to calculate Medicaid rebate information and other information affecting federal, state and third-party reimbursement for our product candidates, and the sale and marketing of our product candidates, are subject to scrutiny under this law. For example, pharmaceutical companies have been found liable under the federal False Claims Act in connection with their off-label promotion of drugs. Penalties for a federal False Claims Act violation include three times the actual damages sustained by the government, plus mandatory civil penalties of between currently $11,665 and $23,331 for each separate false claim, the potential for exclusion from participation in federal healthcare programs and, although the federal False Claims Act is a civil statute, conduct that results in a federal False Claims Act violation may also implicate various federal criminal statutes. If the government were to allege that we were, or convict us of, violating these false claims laws, we could be subject to a substantial fine. In addition, private individuals have the ability to bring actions under the federal False Claims Act and certain states have enacted laws modeled after the federal False Claims Act.

There are also an increasing number of state laws that require manufacturers to make reports to states on pricing and marketing information. Many of these laws contain ambiguities as to what is required to comply with the laws. In addition, as discussed below, a similar federal requirement requires manufacturers to track and report to the federal government certain payments made to physicians and teaching hospitals in the previous calendar year. These laws may affect our sales, marketing and other promotional activities by imposing administrative and compliance burdens on us. In addition, given the lack of clarity with respect to these laws and their implementation, our reporting actions could be subject to the penalty provisions of the pertinent state, and soon federal, authorities.

The failure to comply with regulatory requirements subjects companies to possible legal or regulatory action. Depending on the circumstances, failure to meet applicable regulatory requirements can result in criminal prosecution, fines or other penalties, injunctions, recall or seizure of products, total or partial suspension of production, denial or withdrawal of product approvals or refusal to allow a company to enter into supply contracts, including government contracts.

Changes in regulations, statutes or the interpretation of existing regulations could impact our business in the future by requiring, for example: (1) changes to our manufacturing arrangements; (2) additions or modifications to product labeling; (3) the recall or discontinuation of our products; or (4) additional record-keeping requirements. If any such changes were to be imposed, they could adversely affect the operation of our business.

Patient Protection and Affordable Care Act

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively, the “PPACA”), was enacted, which includes measures that have or will significantly change the way healthcare is financed by both governmental and private insurers. Among the provisions of the PPACA of greatest importance to the pharmaceutical industry are the following:

- The Medicaid Drug Rebate Program requires pharmaceutical manufacturers to enter into and have in effect a national rebate agreement with the Secretary of the Department of Health and Human Services as a condition for states to receive federal matching funds for the manufacturer’s covered outpatient drugs furnished to Medicaid patients. Effective in 2010, the PPACA made several changes to the Medicaid Drug Rebate Program, including increasing pharmaceutical manufacturers’ rebate liability by raising the minimum basic Medicaid rebate on most branded prescription drugs and biologic agents to 23.1% of the average manufacturer prices (“AMP”) and adding a new rebate calculation for “line extensions” (i.e., new formulations, such as extended release formulations) of solid oral dosage forms of branded products, as well as potentially impacting their rebate liability by modifying the statutory definition of AMP. The PPACA also expanded the universe of Medicaid utilization subject to drug rebates by requiring pharmaceutical manufacturers to pay rebates on Medicaid managed care utilization and by expanding the population potentially eligible for Medicaid drug benefits. The CMS have proposed to expand Medicaid rebate liability to the territories of the United States as well. In addition, the PPACA provides for the public availability of retail survey prices and certain weighted average AMPs under the Medicaid program. The implementation of this requirement by the CMS may also provide for the public availability of pharmacy acquisition of cost data, which could negatively impact our sales.

- In order for a pharmaceutical product to receive federal reimbursement under the Medicare Part B and Medicaid programs or to be sold directly to U.S. government agencies, the manufacturer must extend discounts to entities eligible to participate in the 340B drug pricing program. The required 340B discount on a given product is calculated based on the AMP and Medicaid rebate amounts reported by the manufacturer. The PPACA expanded the types of entities eligible to receive discounted 340B pricing, although, under the current state of the law, with the exception of children’s hospitals, these newly-eligible entities will not be eligible to receive discounted 340B pricing on orphan drugs when used for the orphan indication. In addition, as 340B drug pricing is determined based on AMP and Medicaid rebate data, the revisions to the Medicaid rebate formula and AMP definition described above could cause the required 340B discount to increase.

- The PPACA imposes a requirement on manufacturers of branded drugs and biologic agents to provide a 50% discount off the negotiated price of branded drugs dispensed to Medicare Part D patients in the coverage gap (i.e., “donut hole”).

- The PPACA imposes an annual, nondeductible fee on any entity that manufactures or imports certain branded prescription drugs and biologic agents, apportioned among these entities according to their market share in certain government healthcare programs, although this fee would not apply to sales of certain products approved exclusively for orphan indications.

- The PPACA requires pharmaceutical manufacturers to track certain financial arrangements with physicians and teaching hospitals, including any “transfer of value” made or distributed to such entities, as well as any investment interests held by physicians and their immediate family members. Manufacturers are required to track this information and were required to make their first reports in March 2014. The information reported is publicly available on a searchable website.

- As of 2010, a new Patient-Centered Outcomes Research Institute was established pursuant to the PPACA to oversee, identify priorities in and conduct comparative clinical effectiveness research, along with funding for such research. The research conducted by the Patient-Centered Outcomes Research Institute may affect the market for certain pharmaceutical products.

- The PPACA created the Independent Payment Advisory Board, which has the authority to recommend certain changes to the Medicare program to reduce expenditures by the program that could result in reduced payments for prescription drugs. Under certain circumstances, these recommendations will become law unless Congress enacts legislation that will achieve the same or greater Medicare cost savings.

- The PPACA established the Center for Medicare and Medicaid Innovation within CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending. Funding has been allocated to support the mission of the Center for Medicare and Medicaid Innovation through 2020.

Many of the details regarding the implementation of the PPACA are yet to be determined, and, at this time, the full effect of the PPACA on our business remains unclear. Further, there have been recent public announcements by members of the U.S. Congress, President Trump and his administration regarding their plans to repeal and replace the PPACA. For example, on December 22, 2017, President Trump signed into law the Tax Cuts and Jobs Act of 2017, which, among other things, eliminated the individual mandate requiring most Americans (other than those who qualify for a hardship exemption) to carry a minimum level of health coverage, effective January 1, 2019. We cannot predict the ultimate form or timing of any repeal or replacement of the PPACA or the effect such a repeal or replacement would have on our business.

Pediatric Exclusivity and Pediatric Use

Under the Best Pharmaceuticals for Children Act (the "BPCA"), certain drugs may obtain an additional six months of exclusivity if the sponsor submits information requested in writing by the FDA (a "Written Request") relating to the use of the active moiety of the drug in children. Conditions for exclusivity include the FDA's determination that information relating to the use of a new drug in the pediatric population may produce health benefits in that population, the FDA making a written request for pediatric studies and the applicant agreeing to perform, and reporting on, the requested studies within the statutory timeframe. The FDA may not issue a Written Request for studies on unapproved or approved indications or where it determines that information relating to the use of a drug in a pediatric population, or part of the pediatric population, may not produce health benefits in that population. Applications under the BPCA are treated as priority applications, with all of the benefits that designation confers.

We have not received a Written Request for such pediatric studies, although we may ask the FDA to issue a Written Request for such studies in the future. To receive the six-month pediatric market exclusivity, we would need to receive a Written Request from the FDA, conduct the requested studies in accordance with a written agreement with the FDA or, if there is no written agreement, in accordance with commonly accepted scientific principles, and submit reports of the studies. A Written Request may include studies for indications that are not currently in the labeling if the FDA determines that such information will benefit the public health. The FDA will accept the reports upon its determination that the studies were conducted in accordance with, and are responsive to, the original Written Request or commonly accepted scientific principles, as appropriate, and that the reports comply with the FDA's filing requirements.

Under the Pediatric Research Equity Act of 2003 (the "PREA"), an NDA or supplement thereto must contain data that are adequate to assess the safety and effectiveness of the drug product for the claimed indications in all relevant pediatric subpopulations, and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The PREA also authorizes the FDA to require holders of approved NDAs for marketed drugs to conduct pediatric studies under certain circumstances. With the enactment of the Food and Drug Administration Safety and Innovation Act (the "FDASIA"), in 2012, sponsors must also submit pediatric study plans prior to the assessment data. Those plans must contain an outline of the proposed pediatric study or studies the applicant plans to conduct, including study objectives and design, any deferral or waiver requests, and other information required by regulation. The applicant, the FDA and the FDA's internal review committee must then review the information submitted, consult with each other and agree upon a final plan. The FDA or the applicant may request an amendment to the plan at any time.

The FDA may, on its own initiative or at the request of the applicant, grant deferrals for submission of some or all pediatric data until after approval of the product for use in adults, or full or partial waivers from the pediatric data requirements. Additional requirements and procedures relating to deferral requests and requests for extension of deferrals are contained in the FDASIA. Unless otherwise required by regulation, the pediatric data requirements do not apply to products with orphan designation.

Human Capital Resources

In order to achieve the goals and expectations of our Company, it is crucial that we continue to attract and retain top talent. To facilitate talent attraction and retention, we strive to make NeuBase a safe and rewarding workplace, with opportunities for our employees to grow and develop in their careers, supported by strong compensation, benefits and health and wellness programs, and by programs that build connections between our employees.

As of November 30, 2020, we had fifteen full-time employees in the United States. None of our employees are represented by a collective bargaining agreement. We believe that we have a good relationship with our employees. During fiscal 2020, our voluntary turnover rate was less than 7%.

The success of our business is fundamentally connected to the well-being of our employees. Accordingly, we are committed to their health, safety and wellness. We provide our employees and their families with access to a variety of innovative, flexible and convenient health and wellness programs, including benefits that provide protection and security so they can have peace of mind concerning events that may require time away from work or that impact their financial well-being; that support their physical and mental health by providing tools and resources to help them improve or maintain their health status and encourage engagement in healthy behaviors; and that offer choice where possible so they can customize their benefits to meet their needs and the needs of their families. In response to the COVID-19 pandemic, we implemented significant changes that we determined were in the best interest of our employees, as well as the communities in which we operate, and which comply with government regulations. This includes having some of our non-laboratory employees work from home, while implementing additional safety measures for employees continuing critical on-site work.

We provide robust compensation and benefits programs to help meet the needs of our employees. In addition to salaries, these programs include potential annual discretionary bonuses, stock awards, a 401(k) Plan, healthcare and insurance benefits, health savings and flexible spending accounts, paid time off, family leave, and flexible work schedules, among others. In addition to our broad-based equity award programs, we have used targeted equity-based grants with vesting conditions to facilitate retention of personnel, particularly those with critical drug development skills and experience.

Corporate Information

We were incorporated under the laws of the State of Delaware on August 4, 2009, as successor to BBM Holdings, Inc. (formerly known as Prime Resource, Inc., which was organized March 29, 2002 as a Utah corporation) pursuant to a reincorporation merger. On August 4, 2009, we reincorporated in Delaware as "Ohr Pharmaceutical, Inc." On July 12, 2019, we completed the Merger with NeuBase Corporation (formerly known as NeuBase Therapeutics, Inc.), a Delaware corporation, and, upon completion of the Merger, we changed our name to "NeuBase Therapeutics, Inc." Shares of our common stock commenced trading on the Nasdaq Capital Market under the ticker symbol "NBSE" as of market open on July 15, 2019.

Address

Our principal executive offices are located at 700 Technology Drive, Third Floor, Pittsburgh, PA 15219, and our telephone number is (646) 450-1790. Our website is located at www.neubasetherapeutics.com. Any information contained on, or that can be accessed through, our website is not incorporated by reference into, nor is it in any way part of this Form 10-K.

Available Information

We file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission (the "SEC"), and we have an Internet website address at www.neubasetherapeutics.com. We make available free of charge on our Internet website address our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Sections 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), as well as our proxy statements as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. You may also obtain copies of such documents from the SEC's website at http://www.sec.gov.

ITEM 1A. RISK FACTORS

Summary of Risk Factors

Below is a summary of the principal factors that make an investment in our common stock speculative or risky. This summary does not address all of the risks that we face. Additional discussion of the risks summarized in this risk factor summary, and other risks that we face, can be found below under the heading "Risk Factors" and should be carefully considered, together with other information in this Form 10-K and our other filings with the SEC before making an investment decision regarding our common stock.

- We have a limited operating history and face significant challenges and expense as we build our capabilities.
- We have incurred net losses in every period since our inception and anticipate that we will incur substantial net losses in the future.
- The approach we are taking to discover and develop nucleic acid therapeutics is novel and may never lead to marketable products.
- Anti-gene technology is a relatively new technology, and our revenue opportunities will be materially limited if we are unable to use this technology in our intended product pipeline.
- We will need substantial additional financing to develop our products and implement our operating plan. If we fail to obtain additional financing, we will be unable to complete the development and commercialization of our product candidates.
- If we fail to establish and maintain proper and effective internal controls, our ability to produce accurate financial statements on a timely basis could be impaired, which would adversely affect our consolidated operating results, our ability to operate our business, our ability to raise capital, and our stock price.
- The COVID-19 global pandemic is adversely impacting our business, including our manufacturing and preclinical studies.
- We will likely be heavily reliant on our partners for access to key resources for the manufacturing and development of our product candidates.
- Our product pipeline is based on novel technologies, which makes it difficult to predict the time and cost of product candidate development and obtaining regulatory approval.
- Our business is highly dependent on the success of our platform and lead product candidates. If we are unable to obtain approval for our lead product candidates and effectively commercialize our lead product candidates for the treatment of patients in approved indications, our business would be significantly harmed.
- The programs in our product pipeline may cause undesirable side effects or have other properties that could halt their preclinical or clinical development, prevent their regulatory approval, limit their commercial potential or result in significant negative consequences.
- Any potential clinical trials in the future may fail to demonstrate the safety and efficacy of any of our product candidates, which would prevent or delay regulatory approval and commercialization.
- We may encounter substantial delays in our preclinical testing and in future clinical trials (particularly given the effects of the COVID-19 global pandemic), or may not be able to conduct such efforts on the timelines we expect.
- If we encounter difficulties enrolling patients in our future clinical trials, our clinical development activities could be delayed or otherwise adversely affected.
- We face significant competition from other biotechnology and pharmaceutical companies, and our operating results will suffer if we fail to compete effectively.
- We are highly dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

- We will rely on third parties to conduct our clinical trials and manufacture our product candidates in the future. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval of or commercialize our product candidates.
- We depend on intellectual property licensed from third parties and termination of any of these licenses could result in the loss of significant rights, which would harm our business.
- If we fail to adequately protect or enforce our intellectual property rights or secure rights to patents of others, the value of those rights would diminish. Legal proceedings to protect or enforce our patents, the patents of our partners, or our other intellectual property rights could be expensive, time consuming, and unsuccessful.

- Any claims or lawsuits relating to infringement of intellectual property rights brought by or against us will be costly and time consuming and may adversely affect our business, financial condition and results of operations.

- We have never paid dividends on our capital stock and we do not intend to pay dividends for the foreseeable future. Consequently, any gains from an investment in our common stock will likely depend on whether the price of our common stock increases.

- Our charter documents and Delaware law could prevent a takeover that stockholders consider favorable and could also reduce the market price of our stock.

- The market price of our common stock is likely to be volatile and could fluctuate or decline, resulting in a substantial loss of your investment.

- Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could cause you to incur dilution and could cause the market price of our common stock to fall.

Risk Factors

We operate in a dynamic and rapidly changing environment that involves numerous risks and uncertainties. Certain factors may have a material adverse effect on our business, prospects, financial condition and results of operations, and you should carefully consider them. Accordingly, in evaluating our business, we encourage you to consider the following discussion of risk factors, in its entirety, in addition to other information contained in this Form 10-K and our other public filings with the Securities and Exchange Commission (the "SEC"). Other events that we do not currently anticipate or that we currently deem immaterial may also affect our business, prospects, financial condition and results of operations.

Risks Related to the Company

We are a preclinical-stage company, have a very limited operating history, are not currently profitable, do not expect to become profitable in the near future and may never become profitable.

We are a preclinical-stage biotechnology company specializing in the discovery and development of a class of deoxy-ribonucleic acid and ribonucleic acid-targeting drugs called peptide nucleic acids or anti-genes, which did not change as a result of the merger between Ohr Pharmaceutical, Inc., a Delaware corporation ("Ohr"), and NeuBase Therapeutics, Inc., a Delaware corporation ("Legacy NeuBase"), in accordance with the terms of the Agreement and Plan of Merger Reorganization entered into on January 2, 2019 (the "Merger Agreement"). Since our incorporation, we have focused primarily on the development of our proprietary Peptide-nucleic acid AnTisense OLigo ("PATrOL™") platform and preclinical-stage therapeutic candidates. Our platform technology and all of our therapeutic candidates are in the preclinical development stage, and we have not initiated clinical trials for any of our product candidates, nor have any products been approved for commercial sale and we have not generated any revenue. To date, we have not completed a clinical trial (including a pivotal clinical trial), obtained marketing approval for any product candidates, manufactured a commercial scale product or arranged for a third party to do so on our behalf, or conducted sales and marketing activities necessary for successful product commercialization. Drug development is also a highly uncertain undertaking and involves a substantial degree of risk.

As a result, we have no meaningful historical operations upon which to evaluate our business and prospects and have not yet demonstrated an ability to obtain marketing approval for any of our product candidates or successfully overcome the risks and uncertainties frequently encountered by companies in the pharmaceutical industry. We also have not generated any revenues from collaboration and licensing agreements or product sales to date and continue to incur research and development and other expenses. Our prior losses, combined with expected future losses, have had and will continue to have an adverse effect on our stockholders' equity and working capital, and our future success is subject to significant uncertainty.

For the foreseeable future, we expect to continue to incur losses, which we expect will increase significantly from recent historical levels as we expand our drug development activities, seek regulatory approvals for our product candidates and begin to commercialize them if they are approved by the U.S. Food and Drug Administration (the "FDA"), the European Medicines Agency (the "EMA") or comparable foreign authorities. Even if we succeed in developing and commercializing one or more product candidates, we may never become profitable.

The approach we are taking to discover and develop nucleic acid therapeutics is novel and may never lead to marketable products.

We have concentrated our efforts and research and development activities on nucleic acid therapeutics and our synthetic chemistry drug discovery and development platform comprised of peptide nucleic acids with natural and engineered nucleotides and targeting technology. Our future success depends on the successful development and manufacturing of such therapeutics and the effectiveness of our platform. The scientific discoveries that form the basis for our efforts to discover and develop new drugs, including our discoveries about the relationships between oligonucleotide stereochemistry and pharmacology, are relatively new. The scientific evidence to support the feasibility of developing drugs based on these discoveries or peptide nucleic acids ("PNAs") in general is limited. Skepticism as to the feasibility of developing nucleic acid therapeutics and PNAs generally has been, and may continue to be, expressed in scientific literature. In addition, decisions by, and negative results of, other companies with respect to their oligonucleotide development efforts may increase skepticism in the marketplace regarding the potential for oligonucleotides and PNAs.

Relatively few nucleic acid therapeutic product candidates have been tested in humans, and a number of clinical trials for such therapeutics conducted by other companies have not been successful. Few nucleic acid therapeutics have received regulatory approval. The pharmacological properties ascribed to the investigational compounds we are testing in laboratory studies may not be positively demonstrated in clinical trials in patients, and they may interact with human biological systems in unforeseen, ineffective or harmful ways. If our nucleic acid product candidates prove to be ineffective, unsafe or commercially unviable, our entire platform and pipeline would have little, if any, value, which would substantially harm our business, financial condition, results of operations and prospects.

In addition, our approach, which focuses on using nucleic acid therapeutics for drug development, as opposed to multiple or other, more advanced proven technologies, may expose us to additional development and financial risks and make it more difficult to raise additional capital if we are not successful in developing a nucleic acid therapeutic that is timely and cost effective to manufacture and achieves proof of concept in animal models, desired tissue distribution, selectivity for the target, and/or regulatory approval. Because our programs are all in the preclinical stage, we have not yet been able to assess safety in humans, and there may be long-term effects from treatment with any product candidates that we develop using our platform that we cannot predict at this time. Any product candidates the Company may develop will act at the level of deoxyribonucleic acid ("DNA") or ribonucleic acid ("RNA"), and because animal DNA and RNA often differs from human DNA or RNA at the sequence level, in its regulation and degradation, secondary and tertiary structural conformations and ultimately in being translated into proteins with varying amino acid sequences conformations and functions, testing of our product candidates in animal models may not be predictive of the results we observe in human clinical trials of our product candidates for either safety or efficacy. Also, animal models may not exist for some of the diseases we choose to pursue in our programs. As a result of these factors, it is more difficult for us to predict the time and cost of product candidate development, and we cannot predict whether the application of our gene silencing technology, or any similar or competitive gene silencing technologies, will result in the identification, development and regulatory approval of any products. There can be no assurance that any development problems we experience in the future related to our gene silencing technology or any of our research programs will not cause significant delays or unanticipated costs, or that such development problems can be solved. Should we encounter development problems, including unfavorable preclinical or clinical trial results, the FDA and foreign regulatory authorities may refuse to approve our product candidates, or may require additional information, tests or trials, which could significantly delay product development and significantly increase our development costs.

Moreover, even if we are able to provide the requested information or trials to the FDA, there would be no guarantee that the FDA would accept them or approve our product candidates. We may also experience delays in developing a sustainable, reproducible and scalable manufacturing process or developing or qualifying and validating product release assays, other testing and manufacturing methods, and our equipment and facilities in a timely manner, which may prevent us from completing our clinical trials or commercializing our product candidates on a timely or profitable basis, if at all. Any of these factors may prevent us from completing our preclinical studies or any clinical trials that we may initiate or from commercializing any product candidates we may develop on a timely or profitable basis, if at all.

We are highly dependent on the success of our initial product candidates targeting rare genetic diseases and our platform technology in general, and we cannot be certain that any of them will receive regulatory approval or be commercialized.

We have spent time, money and effort on the licensing and development of our core asset: our PATrOL™ platform. To date, we have not submitted an Investigational New Drug application ("IND") to the FDA, and no clinical trials have commenced for any of our product candidates. All of our product candidates will require additional development, including further preclinical studies and bioanalytic method development as well as clinical trials to evaluate their toxicology, carcinogenicity and pharmacokinetics, efficacy, and optimize their formulation, and receive regulatory clearances before they can be commercialized. Positive results obtained during early development do not necessarily mean later development will succeed or that regulatory clearances will be obtained. Our drug development efforts may not lead to commercial drugs, either because our product candidates or our PATrOL™ platform are not deemed safe and effective, because of competitive or market forces, intellectual property issues or because we have inadequate financial or other resources to advance our product candidates through the clinical development and approval processes. If any of our product candidates, or our PATrOL™ platform, fail to demonstrate safety or efficacy at any time or during any phase of development, we would experience potentially significant delays in, or be required to abandon, development of the product candidate.

We do not anticipate that any of our current product candidates will be eligible to receive regulatory approval from the FDA, the EMA or comparable foreign authorities and begin commercialization for a number of years, if ever. Even if we ultimately receive regulatory approval for any of these product candidates, we or our potential future partners, if any, may be unable to commercialize them successfully for a variety of reasons. These include, for example, the availability of alternative treatments, lack of cost-effectiveness, the cost of manufacturing the product on a commercial scale and competition with other drugs. The success of our product candidates and our PATrOL™ platform may also be limited by the prevalence and severity of any adverse side effects. If we fail to commercialize one or more of our current product candidates, we may be unable to generate sufficient revenues to attain or maintain profitability, and our financial condition may decline.

If development of our candidates does not produce favorable results, we and our collaborators, if any, may be unable to commercialize these products.

To receive regulatory approval for the commercialization of the PATrOL™ platform, or any product candidates that we may develop, adequate and well-controlled clinical trials must be conducted to demonstrate safety and efficacy in humans to the satisfaction of the FDA, the EMA and comparable foreign authorities. In order to support marketing approval, these agencies typically require successful results in one or more Phase III clinical trials, which our current product candidates have not yet reached and may never reach. The development process is expensive, can take many years and has an uncertain outcome. Failure can occur at any stage of the process. We may experience numerous unforeseen events during, or as a result of, the development process that could delay or prevent commercialization of our current or future product candidates, including the following:

- preclinical studies conducted with product candidates for potential clinical development to evaluate their toxicology, carcinogenicity and pharmacokinetics and optimize their formulation, among other things, may produce unfavorable results;
- patient recruitment and enrollment in clinical trials may be slower than we anticipate;
- clinical trials may produce negative or inconclusive results;
- costs of development may be greater than we anticipate;
- the potential advantages of the PATrOL™-enabled anti-gene drug candidates may not materialize and thus would confer no benefits to patients over other parties' products that may emerge;
- our product candidates or our PATrOL™ platform may cause undesirable side effects that delay or preclude regulatory approval or limit their commercial use or market acceptance, if approved;
- collaborators who may be responsible for the development of our product candidates may not devote sufficient resources to these clinical trials or other preclinical studies of these candidates or conduct them in a timely manner; or
- we may face delays in obtaining regulatory approvals to commence one or more clinical trials.

Additionally, because our technology potentially involves mutation silencing via genome binding and/or editing across multiple cell and tissue types, we are subject to many of the challenges and risks that advanced therapies, such as gene therapies, face, including:

- regulatory requirements governing gene and cell therapy products have changed frequently and may continue to change in the future;
- improper modification of a gene sequence in a patient's genome could lead to lymphoma, leukemia or other cancers, or other aberrantly functioning cells; and
- the FDA recommends a follow-up observation period of 15 years or longer for all patients who receive treatment using gene therapies, and we may need to adopt and support such an observation period for our product candidates.

Success in early development does not mean that later development will be successful because, for example, product candidates in later-stage clinical trials may fail to demonstrate sufficient safety and efficacy despite having progressed through initial clinical trials.

Furthermore, we have licensed or acquired virtually all of the intellectual property related to our product candidates from Carnegie Mellon University ("CMU"). Much of our preclinical studies and other analyses performed to date with respect to our product candidates have been conducted by their original owners or collaborators. Therefore, as a company, we have limited experience in conducting research on our platform technology and preclinical trials for our product candidates. Since our experience with our platform technology and product candidates is limited, we will need to train our existing personnel or hire additional personnel in order to successfully administer and manage our preclinical studies and clinical trials as anticipated, which may result in delays in completing such anticipated preclinical trials and clinical studies.

We currently do not have strategic collaborations in place for clinical development of our platform technology and any of our current product candidates. Therefore, in the future, we or any potential future collaborative partner will be responsible for establishing the targeted endpoints and goals for development of our product candidates. These targeted endpoints and goals may be inadequate to demonstrate the safety and efficacy levels required for regulatory approvals. Even if we believe data collected during the development of our product candidates are promising, such data may not be sufficient to support marketing approval by the FDA, the EMA or comparable foreign authorities.

Further, data generated during development can be interpreted in different ways, and the FDA, the EMA or comparable foreign authorities may interpret such data in different ways than we or our collaborators. Our failure to adequately demonstrate the safety and efficacy of our platform technology and any of our product candidates would prevent our receipt of regulatory approval, and such failure would ultimately prevent the potential commercialization of these product candidates.

Since we do not currently possess the resources necessary to independently develop and commercialize our product candidates or any other product candidates that we may develop, we may seek to enter into collaborative agreements to assist in the development and potential future commercialization of some or all of these assets as a component of our strategic plan. Our discussions with potential collaborators, however, may not lead to the establishment of collaborations on acceptable terms, if at all, or it may take longer than expected to establish new collaborations, leading to development and potential commercialization delays, which would adversely affect our business, financial condition and results of operations.

We expect to continue to incur significant research and development expenses, which may make it difficult for us to attain profitability.

We expect to expend substantial funds in research and development, including preclinical studies and clinical trials for our platform technology and product candidates, and to manufacture and market any product candidates in the event they are approved for commercial sale. We will likely need additional funding to develop or acquire complementary companies, technologies and assets, as well as for working capital requirements and other operating and general corporate purposes. Moreover, an increase in our headcount would dramatically increase our costs in the near and long-term.

Such spending may not yield any commercially viable products. Due to our limited financial and managerial resources, we must focus on a limited number of research programs and product candidates and on specific indications. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities.

Because the successful development of our product candidates is uncertain, we are unable to precisely estimate the actual funds we will require to develop and potentially commercialize them. In addition, we may not be able to generate sufficient revenue, even if we are able to commercialize any of our product candidates, to become profitable.

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

Because we have limited financial and managerial resources, we will initially develop our lead product candidates for particular rare genetic diseases. As a result, we may forego or delay pursuit of opportunities in other types of diseases that may prove to have greater treatment potential. Likewise, we may forego or delay the pursuit of opportunities with other potential product candidates that may 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 product candidates. 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 similar arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to the product candidate.

Given our lack of current cash flow, we will need to raise additional capital to achieve our goals; however, it may be unavailable to us or, even if capital is obtained, may cause dilution or place significant restrictions on our ability to operate our business.

Since we will be unable to generate sufficient, if any, cash flow to fund our operations for the foreseeable future, we will need to seek additional equity or debt financing to provide the capital required to maintain or expand our operations.

We believe that our existing balance of cash and cash equivalents will enable us to fund our operations for at least the next 12 months from the date this Form 10-K is filed with the SEC, and ideally into the first calendar quarter of 2022. In particular, we expect that these funds will allow us to achieve certain preclinical milestones for our NT0100 program for HD and our NT0200 program for DM1, but we expect that we will need to obtain additional funding to obtain clinical data from the programs. We have based these estimates on assumptions that may prove to be wrong, and we could use our capital resources sooner than we currently expect. Our operating plans and other demands on our cash resources may change as a result of many factors currently unknown to us, and we may need to seek additional funds sooner than planned, through public or private equity or debt financings or other capital sources, including potentially collaborations, licenses and other similar arrangements. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans.

There can be no assurance that we will be able to raise sufficient additional capital on acceptable terms or at all. If such additional financing is not available on satisfactory terms, or is not available in sufficient amounts, we may be required to delay, limit or eliminate the development of business opportunities, and our ability to achieve our business objectives, our competitiveness, and our business, financial condition and results of operations may be materially adversely affected. Furthermore, we will not be able to access the capital markets as quickly due to our non-timely filing of our Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2019 and the loss of our eligibility to file a new registration statement on Form S-3 that would allow us to continuously incorporate by reference our Exchange Act reports filed with the SEC into such registration statement, or to use new “shelf” registration statements to conduct offerings, until approximately one year from the date we regain and maintain status as a timely filer, which is expected to be April 1, 2021. In addition, we may be required to grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves. Our inability to fund our business could lead to the loss of your investment.

Our future capital requirements will depend on many factors, including, but not limited to:

- the scope, rate of progress, results and cost of our preclinical studies, clinical trials and other related activities;
- our ability to establish and maintain strategic collaborations, licensing or other arrangements and the financial terms of such arrangements;
- the timing of, and the costs involved in, obtaining regulatory approvals for any of our current or future product candidates;

- the number and characteristics of the product candidates it seeks to develop or commercialize;
- the cost of manufacturing clinical supplies, and establishing commercial supplies, of our product candidates;
- the cost of commercialization activities if any of our current or future product candidates are approved for sale, including marketing, sales and distribution costs;
- the expenses needed to attract and retain skilled personnel;
- the costs associated with being a public company;
- the costs incurred in maintaining appropriate facilities to be able to perform the necessary work to develop our products;

- the amount of revenue, if any, received from commercial sales of our product candidates, should any of our product candidates receive marketing approval; and
- the costs involved in preparing, filing, prosecuting, maintaining, defending and enforcing possible patent claims, including litigation costs and the outcome of any such litigation.

Any additional capital efforts may divert our management from their day-to-day activities, which may adversely affect our ability to develop and commercialize our product candidates. Moreover, if we raise additional capital by issuing equity securities, the percentage ownership of our existing stockholders may be reduced, and accordingly these stockholders may experience substantial dilution. We may also issue equity securities that provide for rights, preferences and privileges senior to those of our common stock.

Given our need for cash and that equity issuances are the most common type of fundraising for similarly situated companies, the risk of dilution is particularly significant for our stockholders. Furthermore, the incurrence of indebtedness would result in increased fixed payment obligations and we may be required to agree to certain restrictive covenants, such as limitations on our ability to incur additional debt and other operating restrictions that could adversely impact our ability to conduct our business. We could also be required to seek funds through arrangements with collaborators or otherwise at an earlier stage than otherwise would be desirable and we may be required to relinquish rights to some of our product candidates or otherwise agree to terms unfavorable to us, any of which may have a material adverse effect on our business, operating results and prospects.

Our efforts to discover product candidates beyond our current product candidates may not succeed, and any product candidates we recommend for clinical development may not actually begin clinical trials.

We intend to use our technology, including our licensed technology, knowledge and expertise, to develop novel drug candidates to address some of the world's most devastating and costly central nervous system, muscular, and other disorders, including orphan genetic and oncology indications. We intend to expand our existing pipeline of core assets by advancing drug candidate compounds from discovery programs into preclinical and clinical development. However, the process of researching and discovering drug candidate compounds is expensive, time-consuming and unpredictable. Data from our current preclinical programs may not support the clinical development of our lead compounds or other compounds from these programs, and we may not identify any additional drug compounds suitable for recommendation for clinical development. Moreover, any drug compounds we recommend for clinical development may not demonstrate, through preclinical studies, indications of safety and potential efficacy that would support advancement into clinical trials. Such findings would potentially impede our ability to maintain or expand our clinical development pipeline. Our ability to identify new drug compounds and advance them into clinical development also depends upon our ability to fund our research and development operations, and we cannot be certain that additional funding will be available on acceptable terms, or at all.

We are significantly dependent on the success of our PATrOL™ platform and our product candidates based on this platform. A failure of any product candidate based on this platform in clinical development would adversely affect our business and may require us to discontinue development of other product candidates based on the same therapeutic approach.

We have invested, and we expect to continue to invest, significant efforts and financial resources in the development of product candidates based on our PATrOL™ platform. Our ability to generate meaningful revenue, which may not occur for the foreseeable future, if ever, will depend heavily on the successful development, regulatory approval and commercialization of one or more of these product candidates using our PATrOL™ platform. We will not be able to develop new product candidates if it is found that the PATrOL™ platform does not work or creates product candidates that are not safe for use in humans. Since all of our product candidates in our current pipeline are based on our PATrOL™ platform, if any product candidate fails in development as a result of an underlying problem with our PATrOL™ platform, then we may be required to discontinue development of all product candidates that are based on our therapeutic approach. If we were required to discontinue the development of such product candidates based on the PATrOL™ platform, or if any of them were to fail to receive regulatory approval or achieve sufficient market acceptance, we could be prevented from or significantly delayed in achieving profitability. We can provide no assurance that we would be successful at developing other product candidates based on an alternative therapeutic approach from our PATrOL™ platform.

The pharmaceutical market and biotechnology industry are intensely competitive and involve a high degree of risk. If we are unable to compete effectively with existing drugs, new treatment methods and new technologies, we may be unable to commercialize successfully any drug candidates that we develop.

The pharmaceutical market and biotechnology industry are intensely competitive and rapidly changing. Many large pharmaceutical and biotechnology companies, academic institutions, governmental agencies and other public and private research organizations, both in the U.S. and worldwide, are pursuing the development of novel drugs for the same diseases that we are targeting or expect to target. Many of our competitors have, either alone or with strategic partners:

- much greater financial, research, technical and human resources than we have at every stage of the discovery, development, manufacture and commercialization of products and product candidates;
- more extensive experience in designing and conducting preclinical studies and clinical trials, obtaining regulatory approvals, and in manufacturing, marketing and selling pharmaceutical products and product candidates;
- product candidates that are based on previously tested or accepted technologies;
- products and product candidates that have been approved or are in late stages of development; and
- collaborative arrangements in our target markets with leading companies and research institutions.

We will face intense competition from drugs that have already been approved and accepted by the medical community for the treatment of the conditions for which we may develop drug candidates. We also expect to face competition from new drugs that enter the market. We believe there are a significant number of drugs currently under development that may become commercially available in the future, for the treatment of conditions for which we may try to develop drugs. These drugs may be more effective, safer, less expensive, introduced to market earlier, or marketed and sold more effectively or on a more cost-effective basis, than any product candidates we develop. It is possible that the potential advantages of PATrOL™-derived therapeutic candidates (including, among other potential advantages, the ability to systemically deliver drugs and get broad tissue distribution and penetration across the blood-brain barrier, minimal to no innate or adaptive immune responses after single dose or multiple-dose administration, preferential selectivity to mutant targets, and dose schedules to address the disease appropriately or that is viable in the marketplace) do not materialize.

Our competitors may develop or commercialize products with significant advantages over any product candidates we are able to develop and commercialize based on many different factors, including:

- the safety and effectiveness of our product candidates relative to alternative therapies, if any;
- the ease with which our product candidates can be administered and the extent to which patients accept relatively new routes of administration;
- the timing and scope of regulatory approvals for these product candidates;
- the availability and cost of manufacturing, marketing and sales capabilities;
- price;
- reimbursement coverage from governments and other third-party payors; and
- patent position and intellectual property protection.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are viewed as safer, more effective, more convenient or less expensive than any products that we may develop. Our competitors may also obtain FDA or other regulatory approval for their competing products more rapidly than we may obtain approval for any of our product candidates, which could result in our competitors establishing a strong market position before we are able to enter the market. Further, we expect that we will also compete with others when recruiting clinical trial sites and subjects for our clinical trials and when recruiting and retaining qualified scientific and management personnel.

While there are currently no approved treatments available to slow the progression of Huntington's Disease or Myotonic Dystrophy Type 1, publicly available information shows that a number of companies are pursuing product candidates seeking to address the root cause of these indications. These include an investigational drug in Phase III clinical development for HD, and several ongoing clinical and preclinical programs targeting the underlying disease and symptoms in HD and DM1. The success of any of these competitors could reduce or eliminate our commercial opportunity.

Any collaboration arrangement that we may enter into in the future may not be successful, which could adversely affect our ability to develop and commercialize our current and potential future product candidates.

We may seek collaboration arrangements with pharmaceutical companies for the development or commercialization of our current and potential future product candidates. To the extent that we decide to enter into collaboration agreements, we will face significant competition in seeking appropriate collaborators. Moreover, collaboration arrangements are complex and time consuming to negotiate, execute and implement. We may not be successful in our efforts to establish and implement collaborations or other alternative arrangements should we choose to enter into such arrangements, and the terms of the arrangements may not be favorable to us. If and when we collaborate with a third party for development and commercialization of a product candidate, we can expect to relinquish some or all of the control over the future success of that product candidate to the third party. The success of our collaboration arrangements will depend heavily on the efforts and activities of our collaborators. Collaborators generally have significant discretion in determining the efforts and resources that they will apply to these collaborations. As such, our inability to control our collaborators, and the potentially adverse results of our collaborators, may materially and adversely affect our product candidates and, more generally, our PATrOL™ platform, and we may not be able to conduct our program in the manner or on the time schedule it currently contemplates, which could negatively impact our business.

If our potential future collaborations do not result in the successful discovery, development and commercialization of products or if one of our collaborators terminates our agreement with us, we may not receive any future research funding or milestone or royalty payments under the collaboration. If we do not receive the funding we expect under these agreements, our development of our platform technology and product candidates could be delayed and we may need additional resources to develop product candidates and our technology.

Finally, disagreements between parties to a collaboration arrangement can lead to delays in developing or commercializing the applicable product candidate and can be difficult to resolve in a mutually beneficial manner. In some cases, collaborations with biopharmaceutical companies and other third parties are terminated or allowed to expire by the other party. Any such termination or expiration could adversely affect our business, financial condition and results of operations.

We, or any future collaborators, may not be able to obtain orphan drug designation or orphan drug exclusivity for our product candidates.

Regulatory authorities in some jurisdictions, including the U.S. and Europe, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act, the FDA may designate a product as an orphan drug if it is a drug intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals annually in the U.S. In the U.S. and Europe, obtaining orphan drug approval may allow us to obtain financial incentives, such as an extended period of exclusivity during which only we are allowed to market the orphan drug for the orphan indications that we are developing. While we may seek orphan drug designation from the FDA for any of our product candidates, we, or any future collaborators, may not be granted orphan drug designations for our product candidates in the U.S. or in other jurisdictions.

Even if we or any future collaborators obtain orphan drug designation for a product candidate, we or such collaborators may not be able to obtain orphan drug exclusivity for that product candidate. Generally, a product with orphan drug designation only becomes entitled to orphan drug exclusivity if it receives the first marketing approval for the indication for which it has such designation, in which case the FDA or the EMA will be precluded from approving another marketing application for the same drug for that indication for the applicable exclusivity period. The applicable exclusivity period is seven years in the U.S. and ten years in Europe. The European exclusivity period can be reduced to six years if a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified. Orphan drug exclusivity may be lost if the FDA or the EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition.

Even if we or any future collaborators obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because FDA has taken the position that, under certain circumstances, another drug with the same active chemical and pharmacological characteristics, or moiety, can be approved for the same condition. Specifically, the FDA's regulations provide that it can approve another drug with the same active moiety for the same condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care.

Our operations have been adversely affected by the coronavirus outbreak, and we face risks that could impact our business.

A novel strain of coronavirus, COVID-19, originated in Wuhan, China, in December 2019. The virus has spread globally and includes a significant number of cases in the U.S., Europe and Asia. We have relationships with contract research organizations to conduct certain pre-clinical programs and testing and other services in Europe and certain of those business operations have been impacted by the COVID-19 pandemic and are further subject to potential business interruptions arising from new protective measures that may be taken by the governmental or other agencies or governing bodies. We also conduct limited operations within Asia through third-party contract manufacturing organizations whose operations have been and may continue to be negatively affected by the coronavirus outbreak. In addition, certain of our collaborative relationships with academic research institutions in the United States have been and may continue to be materially and adversely impacted by protective measures taken by those institutions or federal and state agencies and governing bodies to restrict access to, or suspend operations at, such facilities. Such protective measures, including quarantines, travel restrictions and business shutdowns, have impacted and may continue to negatively affect our core operations. We have taken precautionary measures aligned with CDC, state and local guidelines that are intended to help minimize the risk of the virus to our employees, including the provision of personal protective equipment, suspension of non-essential travel worldwide for our employees, and we discourage employee attendance at other gatherings. Several of our employees work remotely. Business disruptions elsewhere in the world could also negatively affect the sources and availability of components and materials that are essential to the operation of our business.

Extended periods of interruption to our U.S. operations or those of our contract research and manufacturing organizations due to the coronavirus outbreak could adversely impact the growth of our business and could cause us to cease or delay operations. For example, one of our external contract research providers, was forced to shut down its vivarium where the *in vivo* testing for the NT0100 program was ongoing, and this disruption in operations contributed to a delay and may also incur additional future delays in that program. In such instances, we may need to locate an appropriate replacement third-party facility and establish a contractual relationship in connection with such facilities, which may not be readily available or on acceptable terms that would cause additional delay and increased expense, including as a result of additional required FDA approvals, and may have a material adverse effect on our business.

The extent to which the coronavirus impacts our business and results of operations will depend on future developments, which are highly uncertain and cannot be predicted. This includes new information that may emerge concerning the severity of the coronavirus, the spread and proliferation of the coronavirus around the world, and the actions taken to contain the coronavirus or treat its impact, among others.

We are subject to a multitude of manufacturing risks, any of which could substantially increase our costs and limit supply of our product candidates.

The process of manufacturing our product candidates is complex, highly regulated, and subject to several risks. For example, the process of manufacturing our product candidates is extremely susceptible to product loss due to contamination, equipment failure or improper installation or operation of equipment, low yielding processes, or vendor or operator error. Even minor deviations from normal manufacturing processes for any of our product candidates could result in reduced production yields, product defects, and other supply disruptions. If microbial, viral, or other contaminations are discovered in our product candidates or in the manufacturing facilities in which our product candidates are made, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. In addition, the manufacturing facilities in which our product candidates are made could be adversely affected by equipment failures, labor shortages, natural disasters, public health crises, pandemics and epidemics, such as a novel strain of coronavirus (COVID-19), power failures and numerous other factors. For instance, our therapeutic molecules are complex and comprised of both peptides and nucleic acids, and it may be difficult or impossible to find Good Laboratory Practice- ("GLP") and Current Good Manufacturing Practice- ("cGMP") grade manufacturers, manufacturing may be cost prohibitive, we or our third-party manufacturers may not be able to manufacture product candidates in a timely manner or within specification, or manufacturing may not be available to fulfill regulatory requirements. In addition, we or our third-party manufacturers may not be able to manufacture our product candidates at the necessary scale to meet our development and commercialization requirements.

In addition, any adverse developments affecting manufacturing operations for our product candidates may result in shipment delays, inventory shortages, lot failures, withdrawals or recalls, or other interruptions in the supply of our product candidates. We also may need to take inventory write-offs and incur other charges and expenses for product candidates that fail to meet specifications, undertake costly remediation efforts or seek costlier manufacturing alternatives.

We rely, and will continue to rely, predominantly, on third parties to manufacture our preclinical and clinical drug supplies and our business, financial condition and results of operations could be harmed if those third parties fail to provide us with sufficient quantities of drug product, or fail to do so at acceptable quality levels, prices, or timelines.

We have the capability internally to manufacture small quantities of our drugs for preclinical studies. However, we do not currently have, nor do we plan to acquire, the infrastructure or capability internally to manufacture our clinical drug supplies for use in our clinical trials, and we lack the resources and the capability to manufacture any of our product candidates on a clinical or commercial scale. We rely on our manufacturers to purchase from third-party suppliers the materials necessary to produce our product candidates for our clinical trials. There are a limited number of suppliers for raw materials that we use to manufacture our product candidates, and there may be a need to identify alternate suppliers to prevent a possible disruption of the manufacture of the materials necessary to produce our product candidates for our clinical trials, and, if approved, ultimately for commercial sale. We do not have any control over the process or timing of the acquisition of these raw materials by our manufacturers. Any significant delay or discontinuity in the supply of a product candidate, or the raw material components thereof, for an ongoing clinical trial due to the need to replace a third-party manufacturer could considerably delay completion of our clinical trials, product testing and potential regulatory approval of our product candidates, which could harm our business, financial condition and results of operations.

If we are unable to develop our own commercial organization or enter into agreements with third parties to sell and market our product candidates, we may be unable to generate significant revenues.

We do not have a sales and marketing organization, and we have no experience as a company in the sales, marketing and distribution of pharmaceutical products. If any of our product candidates are approved for commercialization, we may be required to develop our own sales, marketing and distribution capabilities, or make arrangements with a third party to perform sales and marketing services. Developing a sales force for any resulting product or any product resulting from any of our other product candidates is expensive and time consuming and could delay any product launch. We may be unable to establish and manage an effective sales force in a timely or cost-effective manner, if at all, and any sales force we do establish may not be capable of generating sufficient demand for our product candidates. To the extent that we enter into arrangements with collaborators or other third parties to perform sales and marketing services, our product revenues are likely to be lower than if we marketed and sold our product candidates independently. If we are unable to establish adequate sales and marketing capabilities, independently or with others, we may not be able to generate significant revenues and may not become profitable.

The commercial success of our product candidates depends upon their market acceptance among physicians, patients, healthcare payors and the medical community.

Even if our product candidates obtain regulatory approval, our products, if any, may not gain market acceptance among physicians, patients, healthcare payors and the medical community. The degree of market acceptance of any of our approved product candidates will depend on a number of factors, including:

- the effectiveness of our approved product candidates as compared to currently available products;
- patient willingness to adopt our approved product candidates in place of current therapies;
- our ability to provide acceptable evidence of safety and efficacy;
- relative convenience and ease of administration;
- the prevalence and severity of any adverse side effects;
- restrictions on use in combination with other products;
- availability of alternative treatments;
- pricing and cost-effectiveness assuming either competitive or potential premium pricing requirements, based on the profile of our product candidates and target markets;
- effectiveness of our or our partners' sales and marketing strategy;
- our ability to obtain sufficient third-party coverage or reimbursement; and
- potential product liability claims.

In addition, the potential market opportunity for our product candidates is difficult to precisely estimate. Our estimates of the potential market opportunity for our product candidates include several key assumptions based on our industry knowledge, industry publications, third-party research reports and other surveys. Independent sources have not verified all of our assumptions. If any of these assumptions proves to be inaccurate, then the actual market for our product candidates could be smaller than our estimates of our potential market opportunity. If the actual market for our product candidates is smaller than we expect, our product revenue may be limited, it may be harder than expected to raise funds and it may be more difficult for us to achieve or maintain profitability. If we fail to achieve market acceptance of our product candidates in the U.S. and abroad, our revenue will be limited, and it will be more difficult to achieve profitability.

If we fail to obtain and sustain an adequate level of reimbursement for our potential products by third-party payors, potential future sales would be materially adversely affected.

There will be no viable commercial market for our product candidates, if approved, without reimbursement from third-party payors. Reimbursement policies may be affected by future healthcare reform measures. We cannot be certain that reimbursement will be available for our current product candidates or any other product candidate we may develop. Additionally, even if there is a viable commercial market, if the level of reimbursement is below our expectations, our anticipated revenue and gross margins will be adversely affected.

Third-party payors, such as government or private healthcare insurers, carefully review and increasingly question and challenge the coverage of and the prices charged for drugs. Reimbursement rates from private health insurance companies vary depending on the company, the insurance plan and other factors. Reimbursement rates may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. There is a current trend in the U.S. healthcare industry toward cost containment.

Large public and private payors, managed care organizations, group purchasing organizations and similar organizations are exerting increasing influence on decisions regarding the use of, and reimbursement levels for, particular treatments. Such third-party payors, including Medicare, may question the coverage of, and challenge the prices charged for, medical products and services, and many third-party payors limit coverage of or reimbursement for newly approved healthcare products. In particular, third-party payors may limit the covered indications. Cost-control initiatives could decrease the price we might establish for products, which could result in product revenues being lower than anticipated. We believe our drugs will be priced significantly higher than existing generic drugs and consistent with current branded drugs. If we are unable to show a significant benefit relative to existing generic drugs, Medicare, Medicaid and private payors may not be willing to provide reimbursement for our drugs, which would significantly reduce the likelihood of our products gaining market acceptance.

We expect that private insurers will consider the efficacy, cost-effectiveness, safety and tolerability of our product candidates in determining whether to approve reimbursement for such product candidates and at what level. Obtaining these approvals can be a time consuming and expensive process. Our business, financial condition and results of operations would be materially adversely affected if we do not receive approval for reimbursement of our product candidates from private insurers on a timely or satisfactory basis. Limitations on coverage could also be imposed at the local Medicare carrier level or by fiscal intermediaries. Medicare Part B, which covers medical insurance to Medicare patients as discussed below, does not require participating insurance plans to cover all drugs that have been approved by the FDA. Our business, financial condition and results of operations could be materially adversely affected if Part B medical insurance were to limit access to, or deny or limit reimbursement of, our product candidates.

Reimbursement systems in international markets vary significantly by country and by region, and reimbursement approvals must be obtained on a country-by-country basis. In many countries, the product candidate cannot be commercially launched until reimbursement is approved. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. The negotiation process in some countries can exceed 12 months. 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 candidates to other available therapies.

If the prices for our product candidates are reduced or if governmental and other third-party payors do not provide adequate coverage and reimbursement of our drugs, our future revenue, cash flows and prospects for profitability will suffer.

We are exposed to product liability, non-clinical and clinical liability risks which could place a substantial financial burden upon us, should lawsuits be filed against us.

Our business exposes us to potential product liability and other liability risks that are inherent in the testing, manufacturing and marketing of pharmaceutical formulations and products. In addition, the use in our anticipated clinical trials of pharmaceutical products and the subsequent sale of product candidates by us, if approved, or our potential collaborators may cause us to bear a portion of or all product liability risks. A successful liability claim or series of claims brought against us could have a material adverse effect on our business, financial condition and results of operations.

Because we do not currently have any clinical trials ongoing, we do not currently carry product liability insurance. We anticipate obtaining such insurance upon initiation of our clinical development activities; however, we may be unable to obtain product liability insurance on commercially reasonable terms or in adequate amounts. On occasion, large judgments have been awarded in class action lawsuits based on drugs that had unanticipated adverse effects. A successful product liability claim or series of claims brought against us could adversely affect our results of operations and business if judgments therewith exceed our insurance coverage.

If we fail to retain current members of our management, or to attract and keep additional key personnel, we may be unable to successfully develop or commercialize our product candidates.

Our success depends on our continued ability to attract, retain and motivate highly qualified management and scientific personnel. As of November 30, 2020, we had fifteen full-time employees. We will rely primarily on outsourcing research, development and clinical trial activities, and manufacturing operations, as well as other functions critical to our business. We believe this approach enhances our ability to focus on our core product opportunities, allocate resources efficiently to different projects and allocate internal resources more effectively. We have filled several key open positions and are currently recruiting for a few remaining positions. However, competition for qualified personnel is intense. We may not be successful in attracting qualified personnel to fulfill our current or future needs. In the event we are unable to fill critical open employment positions, we may need to delay our operational activities and goals, including the development of our product candidates, and may have difficulty in meeting our obligations as a public company. We do not maintain “key person” insurance on any of our employees.

In addition, competitors and others are likely in the future to attempt to recruit our employees. The loss of the services of any of our key personnel, the inability to attract or retain highly qualified personnel in the future or delays in hiring such personnel, particularly senior management and other technical personnel, could materially and adversely affect our business, financial condition and results of operations. In addition, the replacement of key personnel likely would involve significant time and costs and may significantly delay or prevent the achievement of our business objectives.

From time to time, our management seeks the advice and guidance of certain scientific advisors and consultants regarding clinical and regulatory development programs and other customary matters. These scientific advisors and consultants are not our employees and may have commitments to, or consulting or advisory contracts with, other entities that may limit their availability to us. In addition, our scientific advisors may have arrangements with other companies to assist those companies in developing products or technologies that may compete with us.

We will need to increase the size of our organization and may not successfully manage our growth.

We are a preclinical-stage pharmaceutical company with a small number of employees, and our management systems currently in place are not likely to be adequate to support our future growth plans. Our ability to grow and to manage our growth effectively will require us to hire, train, retain, manage and motivate additional employees and to implement and improve our operational, financial and management systems. These demands also may require the hiring of additional senior management personnel or the development of additional expertise by our senior management personnel. Hiring a significant number of additional employees, particularly those at the management level, would increase our expenses significantly. Moreover, if we fail to expand and enhance our operational, financial and management systems in conjunction with our potential future growth, such failure could have a material adverse effect on our business, financial condition and results of operations.

Because our Chief Executive Officer is involved with several unaffiliated privately held companies, he may experience conflicts of interest and competing demands for his time and attention.

Dietrich Stephan, Ph.D., our Chief Executive Officer, is a member of the governing bodies of several unaffiliated privately held companies, as well as a general partner of Cyto Ventures. Although Dr. Stephan expects to devote substantially all of his time to us, he expects to continue in each of these positions for the foreseeable future. Conflicts of interest could arise with respect to business opportunities that could be advantageous to third party organizations affiliated with Dr. Stephan, on the one hand, and us, on the other hand.

The majority of our current management lacks public company experience, which could put us at greater risk of incurring fines or regulatory actions for failure to comply with federal securities laws and could put us at a competitive disadvantage and require our management to devote additional time and resources to ensure compliance with applicable corporate governance requirements.

The majority of our current executive management do not have experience in managing and operating a public company, which could have an adverse effect on our ability to quickly respond to problems or adequately address issues and matters applicable to public companies. Any failure to comply with federal securities laws, rules or regulations could subject us to fines or regulatory actions, which may materially adversely affect our business, financial condition and results of operations. Further, since certain of our current executive officers do not have experience managing and operating a public company, we may need to dedicate additional time and resources to comply with legally mandated corporate governance policies relative to our competitors whose management teams have more public company experience.

We rely significantly on information technology and any failure, inadequacy, interruption or security lapse of that technology, including any cybersecurity incidents, could harm our ability to operate our business effectively.

Despite the implementation of security measures, our internal computer systems and those of third parties with which we contract are vulnerable to damage from cyber-attacks, computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. System failures, accidents or security breaches could cause interruptions in our operations and could result in a material disruption of our drug development and preclinical and clinical activities and business operations, in addition to possibly requiring substantial expenditures of resources to remedy. To the extent that any disruption or security breach was to result in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur material legal claims and liability, damage to our reputation, suffer loss or harm to our intellectual property rights and the further research, development and commercial efforts of our products and product candidates could be delayed. The loss of drug development or clinical trial data could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and our development programs and the development of our product candidates could be delayed. In addition, if we are held liable for a claim against which we are not insured or for damages exceeding the limits of our insurance coverage, whether arising out of cybersecurity matters, or from some other matter, that claim could have a material adverse effect on our results of operations.

Our employees, consultants, third-party vendors and collaborators may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk of employee, consultant, third-party vendor or collaborator fraud or other misconduct. Misconduct by our employees, consultants, third-party vendors or collaborators could include, among other things, intentional failures to comply with FDA regulations, provide accurate information to the FDA, comply with manufacturing standards, comply with federal and state healthcare fraud and abuse laws and regulations, 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, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commissions, customer incentive programs and other business arrangements. Employee, consultant, vendor or collaborator misconduct also could involve the improper use of information obtained in the course of preclinical or clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter such 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 governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such 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 material adverse effect on our business, financial condition and results of operations, and result in the imposition of significant fines or other sanctions against us.

Business disruptions such as natural disasters could seriously harm our future revenues and financial condition and increase our costs and expenses.

We and our suppliers may experience a disruption in our and their business as a result of natural disasters. A significant natural disaster, such as an earthquake, hurricane, flood or fire, could severely damage or destroy our headquarters or facilities or the facilities of our manufacturers or suppliers, which could have a material and adverse effect on our business, financial condition and results of operations. In addition, terrorist acts or acts of war targeted at the U.S., and specifically the Pittsburgh, Pennsylvania, greater New York, New York, and greater southern California regions, could cause damage or disruption to us, our employees, facilities, partners and suppliers, which could have a material adverse effect on our business, financial condition and results of operations.

We may engage in strategic transactions that could impact our liquidity, increase our expenses and present significant distractions to our management.

From time to time, we may consider strategic transactions, such as spin-offs, strategic partnerships, joint ventures, restructurings, divestitures, business combinations and investments. Additional potential transactions that we may consider include a variety of different business arrangements, including acquisitions of companies, asset purchases and out-licensing or in-licensing of products, product candidates or technologies. Any such transaction may require us to incur non-recurring or other charges, may increase our near- and long-term expenditures and may pose significant integration challenges or disrupt our management or business, which could adversely affect our business, financial condition and results of operations. For example, these transactions may entail numerous operational and financial risks, including:

- exposure to unknown liabilities;
- disruption of our business and diversion of our management’s time and attention in order to develop acquired products, product candidates or technologies;
- incurrence of substantial debt or dilutive issuances of equity securities to pay for any of these transactions;
- higher-than-expected transaction and integration costs;
- write-downs of assets or goodwill or impairment charges;
- increased amortization expenses;
- difficulty and cost in combining the operations and personnel of any acquired businesses or product lines with our operations and personnel;
- impairment of relationships with key suppliers or customers of any acquired businesses or product lines due to changes in management and ownership; and
- inability to retain key employees of any acquired businesses.

Accordingly, although there can be no assurance that we will undertake or successfully complete any transactions of the nature described above, any transactions that we do complete may be subject to the foregoing or other risks, and could have a material adverse effect on our business, financial condition and results of operations.

The estimates and judgments we make, or the assumptions on which we rely, in preparing our financial statements could prove inaccurate.

Our financial statements have been prepared in accordance with U.S. GAAP. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of our assets, liabilities, revenues and expenses, the amounts of charges accrued by us and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. We cannot assure, however, that our estimates, or the assumptions underlying them, will not change over time or otherwise prove inaccurate. For example, our estimates as they relate to anticipated timelines and milestones for our preclinical development or clinical trials may prove to be inaccurate. If this is the case, we may be required to restate our financial statements, which could, in turn, subject us to securities class action litigation or regulatory investigation or action. Defending against such potential litigation or regulatory action relating to a restatement of our financial statements would be expensive and would require significant attention and resources of our management. Moreover, our insurance to cover our obligations with respect to the ultimate resolution of any such litigation or regulatory action may be inadequate. As a result of these factors, any such potential litigation or regulatory action could have a material adverse effect on our financial results or harm our business.

<u>Risks Related to Our Intellectual Property</u>

Our success depends in part on our ability to protect our intellectual property. It is difficult and costly to protect our proprietary rights and technology, and we may not be able to protect our intellectual property rights throughout the world.

Our commercial success will depend in large part on obtaining and maintaining patent, trademark and trade secret protection of our proprietary technologies and our product candidates, their respective components, formulations, methods used to manufacture them and methods of treatment, as well as successfully defending these patents against third-party challenges. Our ability to stop unauthorized third parties from making, using, selling, offering to sell or importing our product candidates is dependent upon the extent to which we have rights under valid and enforceable patents or trade secrets that cover these activities.

The patenting process is expensive and time-consuming, and we may not be able to file and prosecute 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 before it is too late to obtain patent protection. Our pending and future patent applications may not result in issued patents that protect our technology or products, in whole or in part. In addition, our existing patents and any future patents we obtain may not be sufficiently broad to prevent others from using our technology or from developing competing products and technologies.

In the future we may, and presently do, in-license intellectual property from licensors. We may rely on these licensors to file and prosecute patent applications and maintain patents and otherwise protect the intellectual property we license from them. We may have limited control over these activities or any other intellectual property that may be in-licensed. For example, we cannot be certain that such activities by licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights. We may have limited control over the manner in which our licensors initiate an infringement proceeding against a third-party infringer of the intellectual property rights, or defend certain of the intellectual property that is licensed to us. It is possible that the licensors' infringement proceeding or defense activities may be less vigorous than had we conducted them ourselves.

The growth of our business may depend in part on our ability to acquire or in-license additional proprietary rights. For example, our programs may involve additional product candidates that may require the use of additional proprietary rights held by third parties. Our product candidates may also require specific formulations to work effectively and efficiently. These formulations may be covered by intellectual property rights held by others. We may develop products containing our compounds and pre-existing pharmaceutical compounds. These pharmaceutical compounds may be covered by intellectual property rights held by others. We may be required by the FDA or comparable foreign regulatory authorities to provide a companion diagnostic test or tests with our product candidates. These diagnostic test or tests may be covered by intellectual property rights held by others. We may be unable to acquire or in-license any relevant third-party intellectual property rights that we identify as necessary or important to our business operations. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all, which would harm our business. We may need to cease use of the compositions or methods covered by such third-party intellectual property rights, and may need to seek to develop alternative approaches that do not infringe on such intellectual property rights which may entail additional costs and development delays, even if we were able to develop such alternatives, which may not be feasible. Even if we are able to obtain a license under such intellectual property rights, any such license may be non-exclusive, which may allow our competitors access to the same technologies licensed to us. If we are unable to successfully obtain rights to required third-party intellectual property or to maintain the existing intellectual property rights we have, we may have to abandon development of such program and our business and financial condition could suffer.

We may not be successful in obtaining or maintaining necessary rights to our product candidates through acquisitions and in-licenses.

Because several of our programs currently require the use of proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to maintain and exploit these proprietary rights. In addition, we may need to acquire or in-license additional intellectual property in the future. We may be unable to acquire or in-license any compositions, methods of use, processes or other intellectual property rights from third parties that we identify as necessary for our product candidates. We face competition with regard to acquiring and in-licensing third-party intellectual property rights, including from a number of more established companies. These established companies may have a competitive advantage over us due to their size, cash 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 intellectual property rights to us. We also may be unable to acquire or in-license third-party intellectual property rights on terms that would allow it to make an appropriate return on our investment, and we may not be able to market products or perform research and development or other activities covered by these patents.

We may enter into collaboration agreements with U.S. and foreign academic institutions to accelerate development of our current or future preclinical product candidates. Typically, these agreements include an option for the company to negotiate a license to the institution's intellectual property rights resulting from the collaboration. Even with such an option, we may be unable to negotiate a license within the specified timeframe or under terms that are acceptable to us. If we are unable to license rights from a collaborating institution, the institution may offer the intellectual property rights to other parties, potentially blocking our ability to pursue our desired program.

If we are unable to successfully obtain required third-party intellectual property rights or maintain our existing intellectual property rights, we may need to abandon development of the related program and our business, financial condition and results of operations could be materially and adversely affected.

If we are unable to obtain and maintain sufficient patent and other intellectual property protection for our product candidates and technology, our competitors could develop and commercialize products and technology similar or identical to ours, and we may not be able to compete effectively in our market or successfully commercialize any product candidates we may develop.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to our technologies. We will only be able to protect our product candidates, proprietary technologies and their uses from unauthorized use by third parties to the extent that valid and enforceable patents or trade secrets cover them. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market.

Composition-of-matter patents on the active pharmaceutical ingredient are generally considered to be the strongest form of intellectual property protection for pharmaceutical products, as such patents provide protection without regard to any method of use. Method-of-use patents protect the use of a product for the specified method. This type of patent does not prevent a competitor from making and marketing a product that is identical to our products for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products "off-label." Although off-label prescriptions may infringe or contribute to the infringement of method-of use patents, the practice is common and such infringement is difficult to prevent or prosecute.

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 may fail to result in issued patents in the United States or in other foreign countries. Even if the patents do successfully issue, third parties may challenge the validity, enforceability, inventorship, or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. 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 hold with respect to our 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 our clinical trials, the period of time during which we could market our product candidates under patent protection would be reduced. Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to file any patent application related to our product candidates. Furthermore, for applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third-party or instituted by the United States Patent and Trademark Office or the USPTO, to determine who was the first to invent any of the subject matter covered by the patent claims of our applications.

In addition to the protection afforded by patents, we seek to rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable, processes for which patents are difficult to enforce and any other elements of our drug discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. Although we require all of our employees to assign their inventions to us, and require all of our employees, consultants, advisors and any third parties who have access to our proprietary know-how, information or technology to enter into confidentiality agreements, we cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, we will not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results and financial condition.

If we fail to comply with our obligations in the agreements under which we in-license intellectual property and other rights from third parties or otherwise experiences disruptions to our business relationships with our licensors, we could lose intellectual property rights that are important to our business.

Our license agreement with CMU (the "CMU License Agreement"), as the licensor (the "Licensor"), is important to our business, and we expect to enter into additional license agreements in the future. The CMU License Agreement imposes, and we expect that future license agreements will impose, various royalties, sublicensing fees and other obligations on us. If we fail to comply with our obligations under these agreements, or if we file for bankruptcy, we may be required to make certain payments to the Licensor, we may lose the exclusivity of our license, or the Licensor may have the right to terminate the license, in which event we would not be able to develop or market products covered by the license. Additionally, the royalties and other payments associated with these licenses could materially and adversely affect our business, financial condition and results of operations.

Pursuant to the terms of the CMU License Agreement, the Licensor has the right to terminate the CMU License Agreement with respect to the program licensed under certain circumstances, including, but not limited to: (i) if we do not pay amounts when due and within the applicable cure periods or (ii) if we file or have filed against us a petition in bankruptcy or makes an assignment for the benefit of creditors. In the event the CMU License Agreement is terminated by the Licensor, all licenses (or, in the determination of the Licensor, the exclusivity of such licenses) granted to us by the Licensor will terminate immediately.

In some cases, patent prosecution of our licensed technology may be controlled solely by the licensor. If our licensor fails to obtain and maintain patent or other protection for the proprietary intellectual property we in-license, then we could lose our rights to the intellectual property or our exclusivity with respect to those rights, and our competitors could market competing products using the intellectual property. In certain cases, we may control the prosecution of patents resulting from licensed technology. In the event we breach any of our obligations related to such prosecution, we may incur significant liability to our licensing partners. Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues. Disputes may arise regarding intellectual property subject to a licensing agreement, including, but not limited to:

- 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;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our collaborators; and
- the priority of invention of patented technology.

If disputes over intellectual property and other rights that we have in-licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates. If we fail to comply with any such obligations to our licensor, such licensor may terminate their licenses to us, in which case we would not be able to market products covered by these licenses. The loss of our licenses would have a material adverse effect on our business, financial condition and results of operations.

We may be required to pay royalties and sublicensing fees pursuant to the CMU License Agreement, which could adversely affect the overall profitability for us of any product candidates that we may seek to commercialize.

Under the terms of the CMU License Agreement, we will be required to pay royalties on future worldwide net product sales and a percentage of sublicensing fees that we may earn. These royalty payments and sublicensing fees could adversely affect the overall profitability for us of any product candidates that we may seek to commercialize.

We may not be able to protect our proprietary or licensed technology in the marketplace.

We depend on our ability to protect our proprietary or licensed technology. We rely on trade secret, patent, copyright and trademark laws, and confidentiality, licensing and other agreements with employees and third parties, all of which offer only limited protection. Our success depends in large part on our ability and any licensor's or licensee's ability to obtain and maintain patent protection in the U.S. and other countries with respect to our proprietary or licensed technology and product candidates. We currently in-license some of our intellectual property rights to develop our product candidates and may in-license additional intellectual property rights in the future. We cannot be certain that patent enforcement activities by our current or future licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents or other intellectual property rights. We also cannot be certain that our current or future licensors will allocate sufficient resources or prioritize their or our enforcement of such patents. Even if we are not a party to these legal actions, an adverse outcome could prevent us from continuing to license intellectual property that we may need to operate our business, which would have a material adverse effect on our business, financial condition and results of operations.

If we are compelled to spend significant time and money protecting or enforcing our licensed patents and future patents we may own, designing around patents held by others or licensing or acquiring, potentially for large fees, patents or other proprietary rights held by others, our business, financial condition and results of operations may be materially and adversely affected. If we are unable to effectively protect the intellectual property that we own or in-license, other companies may be able to offer the same or similar products for sale, which could materially adversely affect our business, financial condition and results of operations. The patents of others from whom we may license technology, and any future patents we may own, may be challenged, narrowed, invalidated or circumvented, which could limit our ability to stop competitors from marketing the same or similar products or limit the length of term of patent protection that we may have for our products.

Obtaining and maintaining patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by

governmental patent agencies, and our patent protection for licensed patents, licensed pending patent applications and potential future patent applications and patents could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or patent applications will be due to be paid to the U.S. Patent and Trademark Office ("USPTO") and various governmental patent agencies outside of the U.S. in several stages over the lifetime of the applicable patent and/or patent application. The USPTO and various non-U.S. governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. If this occurs with respect to our in-licensed patents or patent applications we may file in the future, our competitors might be able to use our technologies, which would have a material adverse effect on our business, financial condition and results of operations.

The patent position of pharmaceutical and biotechnology companies generally is highly uncertain and involves complex legal and factual questions for which many legal principles remain unresolved. In recent years patent rights have been the subject of significant litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our pending and future patent applications may not result in patents being issued in the United States or in other jurisdictions which protect our technology or products or which effectively prevent others from commercializing competitive technologies and products. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. 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 were the first to make the inventions claimed in our patents or pending patent applications, or that we were the first to file for patent protection of such inventions. In addition, the U.S. Patent and Trademark Office, or USPTO, might require that the term of a patent issuing from a pending patent application be disclaimed and limited to the term of another patent that is commonly owned or names a common inventor. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain.

Even if our patent applications issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our owned or licensed patents by developing similar or alternative technologies or products in a non-infringing manner. The issuance of a patent is not conclusive as to its scope, validity or enforceability, and our owned and in-licensed patents may be challenged in the courts or patent offices in the United States and abroad. Such challenges may result in the patent claims of our owned or in-licensed patents being narrowed, invalidated or held unenforceable, in whole or in part. This result could limit our ability to stop or prevent us from stopping others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and products. Such challenges may result in loss of exclusivity or freedom to operate. 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 patent portfolio may not provide us with sufficient rights to exclude others from commercializing products similar or identical to ours or otherwise provide us with a competitive advantage.

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

• others may be able to make or use compounds that are similar to the pharmaceutical compounds used in our product candidates but that are not covered by the claims of our patents;

• the active pharmaceutical ingredients in our current product candidates will eventually become commercially available in generic drug products, and no patent protection may be available with regard to formulation or method of use;

• we or our licensors, as the case may be, may fail to meet our obligations to the U.S. government in regards to any in-licensed patents and patent applications funded by U.S. government grants, leading to the loss of patent rights;

• we might not have been the first to file patent applications for these inventions;

• others may independently develop similar or alternative technologies or duplicate any of our technologies;

• it is possible that our pending patent applications will not result in issued patents;

• it is possible that there are prior public disclosures that could invalidate our patents, as the case may be, or parts of our or their patents;

• it is possible that others may circumvent our patents;

• it is possible that there are unpublished patent applications maintained in secrecy that may later issue with claims covering our products or technology similar to ours;

• the laws of foreign countries may not protect our proprietary rights to the same extent as the laws of the United States;

• the claims of our issued patents or patent applications, if and when issued, may not cover our product candidates;

• our patents may not provide us with any competitive advantages, may be narrowed in scope, or be held invalid or unenforceable as a result of legal challenges by third parties;

• the inventors of our patents or patent applications may become involved with competitors, develop products or processes which design around our patents, or become hostile to us or the patents or patent applications on which they are named as inventors;

• collaborators may develop adjacent or competing products to ours that are outside the scope of our patents;

• we may not develop additional proprietary technologies for which we can obtain patent protection;

• it is possible that product candidates or diagnostic tests we develop may be covered by third parties' patents or other exclusive rights; or

• the patents of others may have an adverse effect on our business.

Patents that we currently license and patents that we may own or license in the future do not necessarily ensure the protection of our licensed or owned intellectual property for a number of reasons, including, without limitation, the following:

- the patents may not be broad or strong enough to prevent competition from other products that are identical or similar to our product candidates;

- there can be no assurance that the term of a patent can be extended under the provisions of patent term extensions afforded by U.S. law or similar provisions in foreign countries, where available;
- the issued patents and patents that we may obtain or license in the future may not prevent generic entry into the market for our product candidates;
- we, or third parties from whom we in-license or may license patents, may be required to disclaim part of the term of one or more patents;
- there may be prior art of which we are not aware that may affect the validity or enforceability of a patent claim;
- there may be prior art of which we are aware, which we do not believe affects the validity or enforceability of a patent claim, but which, nonetheless, ultimately may be found to affect the validity or enforceability of a patent claim;
- there may be other patents issued to others that will affect our freedom to operate;
- if the patents are challenged, a court could determine that they are invalid or unenforceable;
- there might be a significant change in the law that governs patentability, validity and infringement of our licensed patents or any future patents we may own that adversely affects the scope of our patent rights;
- a court could determine that a competitor's technology or product does not infringe our licensed patents or any future patents we may own; and
- the patents could irretrievably lapse due to failure to pay fees or otherwise comply with regulations or could be subject to compulsory licensing.

If we encounter delays in our development or clinical trials, the period of time during which we could market our potential products under patent protection would be reduced.

Our competitors may be able to circumvent our licensed patents or future patents we may own by developing similar or alternative technologies or products in a non-infringing manner. Our competitors may seek to market generic versions of any approved products by submitting abbreviated new drug applications to the FDA in which our competitors claim that our licensed patents or any future patents we may own are invalid, unenforceable or not infringed. Alternatively, our competitors may seek approval to market their own products similar to or otherwise competitive with our product candidates. In these circumstances, we may need to defend or assert our licensed patents or any future patents we may own, including by filing lawsuits alleging patent infringement. In any of these types of proceedings, a court or other agency with jurisdiction may find our licensed patents or any future patents we may own invalid or unenforceable. We may also fail to identify patentable aspects of our research and development before it is too late to obtain patent protection. Even if we own or in-license valid and enforceable patents, these patents still may not provide protection against competing products or processes sufficient to achieve our business objectives.

We also may rely on trade secrets to protect our technology, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect, and we have limited control over the protection of trade secrets used by our collaborators and suppliers. Although we use reasonable efforts to protect our trade secrets, our employees, consultants, contractors, outside scientific collaborators and other advisors may unintentionally or willfully disclose our information to competitors or use such information to compete with us. Moreover, our competitors may independently develop equivalent knowledge, methods and know-how. If our confidential or proprietary information is divulged to or acquired by third parties, including our competitors, our competitive position in the marketplace will be harmed and this would have a material adverse effect on our business.

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 some countries do not protect intellectual property rights to the same extent as laws in the United States. 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 countries. Competitors may use our technologies in countries where we have not obtained patent protection to develop their own products and further, may infringe our patents in territories where we have patent protection, but enforcement is not as strong as in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in certain countries. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property, particularly those relating to pharmaceutical and biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign countries 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. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

We may infringe the intellectual property rights of others, which may prevent or delay our drug development efforts and prevent us from commercializing or increase the costs of commercializing our product candidates.

Our commercial success depends significantly on our ability to operate without infringing the patents and other intellectual property rights of third parties. For example, there could be issued patents of which we are not aware that our current or potential future product candidates infringe. There also could be patents that we believe we do not infringe, but that we may ultimately be found to infringe. We have licensed intellectual property from CMU under the CMU License Agreement, and prior generation intellectual property was licensed to other entities. Such intellectual property, in conjunction with further developed technologies for gene editing therapies using such intellectual property, may overlap with our own intellectual property.

As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that others may assert our product candidates infringe the patent rights of others. Moreover, it is not always clear to industry participants, including us, which patents cover various types of drugs, products or their methods of use or manufacture. Thus, because of the large number of patents issued and patent applications filed in our fields, there may be a risk that third parties may allege they have patent rights encompassing our product candidates, technologies or methods. Furthermore, because the nucleic acid therapeutics intellectual property landscape is still evolving and our product candidates have not been through clinical trials or commercialized, it is difficult to conclusively assess our freedom to operate without infringing third party rights. There are numerous companies that have pending patent applications and issued patents directed to certain aspects of nucleic acid therapeutics. We are aware of third-party competitors in the oligonucleotide therapeutics space, whose patent filings and/or issued patents may include claims directed to targets and/or products related to some of our programs. It is possible that at the time that we commercialize our products these third-party patent portfolios may include issued patent claims that cover our product candidates or critical features of their production or use. Our competitive position may suffer if patents issued to third parties or other third-party intellectual property rights cover, or may be alleged to cover, our product candidates or elements thereof, or methods of manufacture or use relevant to our development plans. In such cases, we may not be in a position to develop or commercialize product candidates unless we successfully pursue litigation to nullify or invalidate the third-party intellectual property right concerned or enter into a license agreement with the intellectual property right holder, if available on commercially reasonable terms.

Moreover, patent applications are in some cases maintained in secrecy until patents are issued. The publication of discoveries in the scientific or patent literature frequently occurs substantially later than the date on which the underlying discoveries were made and patent applications were filed. Because patents can take many years to issue, there may be currently pending applications of which we are unaware that may later result in issued patents that our product candidates or potential products infringe. For example, pending applications may exist that claim or can be amended to claim subject matter that our product candidates or potential products infringe. Competitors may file continuing patent applications claiming priority to already issued patents in the form of continuation, divisional, or continuation-in-part applications, in order to maintain the pendency of a patent family and attempt to cover our product candidates. We cannot be certain that others have not filed patent applications for technology covered by our issued patents or our pending applications, or that we were the first to invent the technology. Our competitors may have filed, and may in the future file, patent applications covering our products or technology similar to ours. Any such patent application may have priority over our patent applications or patents, which could require us to obtain rights to issued patents covering such technologies.

Third parties may assert that we are employing their proprietary technology without authorization and may sue us for patent or other intellectual property infringement. These lawsuits are costly and could adversely affect our business, financial condition and results of operations and divert the attention of managerial and scientific personnel. If we are sued for patent infringement, we would need to demonstrate that our product candidates, potential products or methods either do not infringe the claims of the relevant patent or that the patent claims are invalid, and we may not be able to do this. Proving invalidity is difficult. For example, in the U.S., proving invalidity requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents. Even if we are successful in these proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel could be diverted in pursuing these proceedings, which could have a material adverse effect on us. In addition, we may not have sufficient resources to bring these actions to a successful conclusion. If a court holds that any third-party patents are valid, enforceable and cover our products or their use, the holders of any of these patents may be able to block our ability to commercialize our products unless it acquires or obtains a license under the applicable patents or until the patents expire.

If a third party claims that we infringe its intellectual property rights, we may face a number of issues, including, but not limited to: infringement and other intellectual property claims which, regardless of merit, may be expensive and time-consuming to litigate and may divert our management's attention from our core business; substantial damages for infringement, which we may have to pay if a court decides that the product candidate or technology at issue infringes on or violates the third party's rights, and, if the court finds that the infringement was willful, we could be ordered to pay treble damages and the patent owner's attorneys' fees; a court prohibiting us from developing, manufacturing, marketing or selling our product candidates, or from using our proprietary technologies, unless the third party licenses its product rights to us, which it is not required to do; if a license is available from a third party, we may have to pay substantial royalties, upfront fees and other amounts, and/or grant cross-licenses to intellectual property rights for our products; and redesigning our product candidates or processes so they do not infringe, which may not be possible or may require substantial monetary expenditures and time.

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 an *ex-parte* re-exam, *inter partes* review or post-grant review proceedings. These proceedings are expensive and may consume our time or other resources. We may choose to challenge a third party's patent in patent opposition proceedings in the EPO, or other foreign patent office. 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 or proprietary technologies.

We may not be able to enter into licensing arrangements or make other arrangements at a reasonable cost or on reasonable terms. Any inability to secure licenses or alternative technology could result in delays in the introduction of our product candidates or lead to prohibition of the manufacture or sale of products by us. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. We could be forced, including by court order, to cease commercializing the infringing technology or product candidate. In addition, in any such proceeding or litigation, we could be found liable for monetary damages, including treble damages and attorneys' fees, if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could materially and adversely affect our business, financial condition and results of operations. Any claims by third parties that we have misappropriated their confidential information or trade secrets could have a similar material and adverse effect on our business, financial condition and results of operations. 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.

Our product candidates may also require specific formulations to work effectively and efficiently. These formulations may be covered by intellectual property rights held by others. We may develop products containing our compounds and pre-existing pharmaceutical compounds. These pharmaceutical compounds may be covered by intellectual property rights held by others. We may be required by the FDA or comparable foreign regulatory authorities to provide a companion diagnostic test or tests with our product candidates. These diagnostic test or tests may be covered by intellectual property rights held by others. We may be unable to acquire or in-license any relevant third-party intellectual property rights that we identify as necessary or important to our business operations.

We, or our licensors, may not be able to detect infringement against our owned or in-licensed patents, as the case may be, which may be especially difficult for manufacturing processes or formulation patents. Even if we or our licensors detect infringement by a third party of our owned or in-licensed patents, we or our licensors, as the case may be, may choose not to pursue litigation against or settlement with the third party. If we, or our licensors, later sue such third party for patent infringement, the third party may have certain legal defenses available to it, which otherwise would not be available except for the delay between when the infringement was first detected and when the suit was brought. Such legal defenses may make it impossible for us or our licensors to enforce our owned or in-licensed patents, as the case may be, against such third party.

Any claims or lawsuits relating to infringement of intellectual property rights brought by or against us will be costly and time consuming and may adversely affect our business, financial condition and results of operations.

Competitors may infringe or otherwise violate our patents, trademarks, copyrights or other intellectual property. To counter infringement or other violations, we may be required to initiate litigation to enforce or defend our licensed and owned intellectual property. Lawsuits to protect our intellectual property rights can be very time consuming and costly. There is a substantial amount of litigation involving patent and other intellectual property rights in the pharmaceutical industry generally. Such litigation or proceedings could substantially increase our operating expenses and reduce the resources available for development activities or any future sales, marketing or distribution activities.

In any infringement litigation, any award of monetary damages we receive may not be commercially valuable. 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 litigation. Moreover, there can be no assurance that we will have sufficient financial or other resources to file and pursue such infringement claims, which typically last for years before they are resolved. Further, any claims we assert against a perceived infringer could provoke these parties to assert counterclaims against us alleging that we have infringed their patents. 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. 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. In addition, in a patent infringement proceeding, a court may decide that one or more of the patents we assert is invalid or unenforceable, in whole or in part, construe the patent's claims narrowly or refuse to prevent the other party from using the technology at issue on the grounds that our patents do not cover the technology. Similarly, if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In such a case, we could ultimately be forced to cease use of such marks.

In addition, our licensed patents and patent applications, and patents and patent applications that we may apply for, own or license in the future, could face other challenges, such as interference proceedings, opposition proceedings, re-examination proceedings and other forms of post-grant review. Any of these challenges, if successful, could result in the invalidation of, or in a narrowing of the scope of, any of our licensed patents and patent applications and patents and patent applications that we may apply for, own or license in the future subject to challenge. Any of these challenges, regardless of their success, would likely be time-consuming and expensive to defend and resolve and would divert our management and scientific personnel's time and attention.

Any issued patents we may own covering our product candidates could be narrowed or found invalid or unenforceable if challenged in court or before administrative bodies in the United States or abroad, including the USPTO.

Any of our intellectual property rights could be challenged or invalidated despite measures we take to obtain patent and other intellectual property protection with respect to our product candidates and proprietary technology. For example, if we were to initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that our patent is invalid and/or unenforceable. In patent litigation in the U.S. and in some other jurisdictions, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, for example, lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld material information from the USPTO or the applicable foreign counterpart, or made a misleading statement, during prosecution. A litigant or the USPTO itself could challenge our patents on this basis even if we believe that we have conducted our patent prosecution in accordance with the duty of candor and in good faith. The outcome following such a challenge is unpredictable.

With respect to challenges to the validity of our patents, for example, there might be invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on a product candidate. Even if a defendant does not prevail on a legal assertion of invalidity and/or unenforceability, our patent claims may be construed in a manner that would limit our ability to enforce such claims against the defendant and others. The cost of defending such a challenge, particularly in a foreign jurisdiction, and any resulting loss of patent protection could have a material adverse impact on one or more of our product candidates and our business. Enforcing our intellectual property rights against third parties may also cause such third parties to file other counterclaims against us, which could be costly to defend, particularly in a foreign jurisdiction, and could require us to pay substantial damages, cease the sale of certain products or enter into a license agreement and pay royalties (which may not be possible on commercially reasonable terms or at all). Any efforts to enforce our intellectual property rights are also likely to be costly and may divert the efforts of our scientific and management personnel.

We may be subject to claims challenging the inventorship of our patents and other intellectual property.

We may be subject to claims that former employees, collaborators or other third parties have an interest in our patents, trade secrets, or other intellectual property as an inventor or co-inventor. For example, we may have inventorship disputes arise from conflicting obligations of employees, consultants or others who are involved in developing our product candidates. While it is our policy to require our employees and contractors who may be involved in the development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who in fact develops intellectual property that we regard as our own. Our and their assignment agreements may not be self-executing or may be breached, and litigation may be necessary to defend against these and other claims challenging inventorship or our ownership of our patents, trade secrets or other intellectual property. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, intellectual property that is important to our product candidates. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We may not be able to protect our intellectual property rights throughout the world.

Filing, prosecuting and defending patents on product candidates throughout the world would be prohibitively expensive. Competitors may use our licensed and owned technologies in jurisdictions where we have not licensed or obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we may obtain or license patent protection, but where patent enforcement is not as strong as that in the U.S. These products may compete with our product candidates in jurisdictions where we do not have any issued or licensed patents, and any future patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so 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 and other intellectual property protection, particularly those relating to pharmaceuticals, which could make it difficult for us to stop the infringement of our licensed patents and future patents we may own, or marketing of competing products in violation of our proprietary rights generally. Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the U.S. As a result, we may encounter significant problems in protecting and defending our licensed and owned intellectual property both in the U.S. and abroad. For example, China currently affords less protection to a company's intellectual property than some other jurisdictions. As such, the lack of strong patent and other intellectual property protection in China may significantly increase our vulnerability regarding unauthorized disclosure or use of our intellectual property and undermine our competitive position. Proceedings to enforce our future patent rights, if any, in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business.

We may be unable to adequately prevent disclosure of trade secrets and other proprietary information.

In order to protect our proprietary and licensed technology and processes, we rely in part on confidentiality agreements with our corporate partners, employees, consultants, manufacturers, outside scientific collaborators and sponsored researchers and other advisors. These agreements may not effectively prevent disclosure of our confidential information and may not provide an adequate remedy in the event of unauthorized disclosure of confidential information. In addition, others may independently discover our trade secrets and proprietary information. Failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We expect to employ individuals who were previously employed at other pharmaceutical companies. Although we have no knowledge of any such claims against us, we may be subject to claims that us or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of our employees' former employers or other third parties. Litigation may be necessary to defend against these claims. There is no guarantee of success in defending these claims, and even if we are successful, litigation could result in substantial cost and be a distraction to our management and other employees.

We may become involved in disputes with our employees, consultants, or independent contractors regarding the ownership of intellectual property.

We will rely on our employees, consultants, and independent contractors to develop intellectual property that we will own and commercialize. These persons may dispute the terms of their agreements with us, for example, their obligation to assign intellectual property, work product, and know how to us. In case of such a dispute, the person may assert that he owns the work that he performed on our behalf, and that all corresponding intellectual property rights vest in him. The person may assert ownership of the intellectual property, refuse to disclose the intellectual property to us, and fail to execute documents essential to document our ownership. If the person withholds the disclosure of new technology, we may not even know what technology has been withheld from us, or that the technology even exists. In this case, we may never be able to identify and perfect title to the technology. Such a person would pose a significant risk of disclosure of our confidential intellectual property. If the person chose to reveal the technology to a third party, we may have no means or opportunity to prevent the disclosure. Our confidential intellectual property would then become known to third parties, possibly even without us knowing about the disclosure. We would suffer material adverse effects from the disclosure and misuse of our intellectual property. To enforce our rights would require a complex dispute of state and federal intellectual property law to take place in a state court. The outcome of such a dispute in a state court, especially in a jury trial, is highly uncertain.

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. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. Various extensions 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 for a product candidate, we may be open to competition from competitive medications, including generic medications. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such product candidates might expire before or shortly after such product candidates are commercialized. As a result, our patent portfolio may not provide us with sufficient rights to exclude others from commercializing product candidates similar or identical to ours for a meaningful amount of time, or at all.

Depending upon the timing, duration and conditions of any FDA marketing approval of our product candidates, one or more of our U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, referred to as the Hatch-Waxman Amendments, and similar legislation in the European Union and certain other countries. The Hatch-Waxman Amendments permit a patent term extension of up to five years for a patent covering an approved product as compensation for effective patent term lost during product development and the FDA regulatory review process. However, we may not receive an extension if we fail to exercise due diligence during the testing phase or regulatory review process, fail to apply within applicable deadlines, fail to apply prior to expiration of relevant patents or otherwise fail to satisfy applicable requirements. Moreover, the length of the extension could be less than we request. Only one patent per approved product can be extended, the extension cannot extend the total patent term beyond 14 years from approval and only those claims covering the approved drug, a method for using it or a method for manufacturing it may be extended. If we are unable to obtain patent term extension or the term of any such extension is less than we request, the period during which we can enforce our patent rights for the applicable product candidate will be shortened and our competitors may obtain approval to market competing products sooner. As a result, our revenue from applicable products could be reduced. Further, if this occurs, our competitors may take advantage of our investment in development and trials by referencing our clinical and preclinical data and launch their product earlier than might otherwise be the case, and our competitive position, business, financial condition, results of operations and prospects could be materially harmed.

Also, there are detailed rules and requirements regarding the patents that may be submitted to the FDA for listing in the Approved Drug Products with Therapeutic Equivalence Evaluations, or the Orange Book. We may be unable to obtain patents covering our product candidates that contain one or more claims that satisfy the requirements for listing in the Orange Book. Even if we submit a patent for listing in the Orange Book, the FDA may decline to list the patent, or a manufacturer of generic drugs may challenge the listing. If one of our product candidates is approved and a patent covering that product candidate is not listed in the Orange Book, a manufacturer of generic drugs would not have to provide advance notice to us of any abbreviated new drug application filed with the FDA to obtain permission to sell a generic version of such product candidate. Any of the foregoing could harm our competitive position, business, financial condition, results of operations and prospects.

Risks Related to Government Regulation

We are very early in our development efforts. All of our product candidates are still in preclinical development. If we are unable to advance our product candidates to clinical development, obtain regulatory approval and ultimately commercialize our product candidates or experience significant delays in doing so, our business will be materially harmed.

We are very early in our development efforts, and all of our product candidates are still in preclinical development. We have invested substantially all of our efforts and financial resources in the identification and preclinical development of PATrOL-enabled therapies, including the development programs for the treatment of Huntington's Disease and Myotonic Dystrophy Type 1. Our ability to generate product revenues, which we do not expect will occur for many years, if ever, will depend on the successful development and eventual commercialization of our product candidates, which may never occur. We currently generate no revenue from sales of any products, and we may never be able to develop or commercialize a marketable product. In addition, certain of our product candidate development programs contemplate the development of companion diagnostics, which are assays or tests to identify an appropriate patient population. Companion diagnostics are subject to regulation as medical devices and must themselves be approved for marketing by the FDA or certain other foreign regulatory agencies before we may commercialize our product candidates. The success of our product candidates will depend on several factors, including the following:

- successful completion of preclinical studies;
- approval of INDs for our planned clinical trials or future clinical trials;
- successful enrollment in, and completion of, clinical trials;
- successful development of companion diagnostics for use with certain of our product candidates;

- receipt of regulatory approvals from applicable regulatory authorities;
- establishing commercial manufacturing capabilities or making arrangements with third-party manufacturers for clinical supply and commercial manufacturing;
- obtaining and maintaining patent and trade secret protection or regulatory exclusivity for our product candidates;
- launching commercial sales of our product candidates, if and when approved, whether alone or in collaboration with others;
- acceptance of the product candidates, if and when approved, by patients, the medical community and third-party payors;
- effectively competing with other therapies;
- obtaining and maintaining third-party insurance coverage and adequate reimbursement;
- enforcing and defending intellectual property rights and claims; and
- maintaining a continued acceptable safety profile of the product candidates following approval, if approved.

If we do not achieve one or more of these factors in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize our product candidates, 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.

Furthermore, the FDA has relatively limited experience with nucleic acid therapeutics, particularly PNAs, which may increase the complexity, uncertainty and length of the regulatory review process for our product candidates. To date, the FDA has approved few nucleic acid therapeutics for marketing and commercialization, and the FDA and our foreign counterparts have not yet established any definitive policies, practices or guidelines specifically in relation to these drugs. The lack of policies, practices or guidelines specific to nucleic acid therapeutics may hinder or slow review by the FDA of any regulatory filings that we may submit. Moreover, the FDA may respond to these submissions by defining requirements we may not have anticipated. Such responses could lead to significant delays in the development of our product candidates. In addition, because there may be approved treatments for some of the diseases for which we may seek approval, in order to receive regulatory approval, we may need to demonstrate through clinical trials that the product candidates we develop to treat these diseases, if any, are not only safe and effective, but safer or more effective than existing products. Furthermore, in recent years, there has been increased public and political pressure on the FDA with respect to the approval process for new drugs, and the FDA's standards, especially regarding drug safety, appear to have become more stringent. As a result of the foregoing factors, we may never receive regulatory approval to market and commercialize any product candidate.

Preclinical and clinical trials are expensive, time-consuming and difficult to design and implement, and involve uncertain outcomes. Furthermore, results of earlier preclinical studies and clinical trials may not be predictive of results of future preclinical studies or clinical trials.

All of our product candidates are still in the preclinical stage, and their risk of failure is high. Before we can commence clinical trials for a product candidate, we must complete extensive preclinical testing and studies that support our planned INDs in the U.S., or similar applications in other jurisdictions. We cannot be certain of the timely completion or outcome of our preclinical testing and studies and cannot predict if the FDA or other regulatory authorities will accept our proposed clinical programs or if the outcome of our preclinical testing and studies will ultimately support the further development of our programs. It is also impossible to predict when or if any of our product candidates will complete clinical trials evaluating their safety and effectiveness in humans or will receive regulatory approval. To obtain the requisite regulatory approvals to market and sell any of our product candidates, we must demonstrate through extensive preclinical studies and clinical trials that our PATrOL™ platform and product candidates are safe and effective in humans for use in each target indication. To date, we have never advanced a product candidate into a clinical trial. Preclinical and clinical testing is expensive and can take many years to complete, and the outcome is inherently uncertain. Failure can occur at any time during the preclinical or clinical trial process. Our preclinical programs may experience delays or may never advance to clinical trials, which would adversely affect our ability to obtain regulatory approvals or commercialize these programs on a timely basis or at all, which would have an adverse effect on our business, financial condition and results of operations.

Additionally, the results of preclinical studies and future clinical trials of product candidates may not be predictive of the results of later-stage clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy results despite having progressed through preclinical studies and initial clinical trials. Many companies in the pharmaceutical industry have suffered significant setbacks in advanced clinical trials due to adverse safety profiles or lack of efficacy, notwithstanding promising results in earlier studies. Similarly, our future clinical trial results may not be successful for these or other reasons.

This product candidate development risk is heightened by any changes in the anticipated clinical trials compared to the completed clinical trials. As product candidates are developed from preclinical through early to late stage clinical trials towards approval and commercialization, it is customary that various aspects of the development program, such as manufacturing and methods of administration, are altered along the way in an effort to optimize processes and results. While these types of changes are common and are intended to optimize the product candidates for late stage clinical trials, approval and commercialization, such changes carry the risk that they will not achieve these intended objectives.

Any of these changes could make the results of our anticipated clinical trials or other future clinical trials we may initiate less predictable and could cause our product candidates to perform differently, including causing toxicities, which could delay completion of our clinical trials, delay approval of our product candidates, and/or jeopardize our ability to commence product sales and generate revenues.

We may rely on third parties to conduct investigator-sponsored clinical trials of our product candidates. Any failure by a third party to meet our obligations with respect to the clinical development of our product candidates may delay or impair our ability to obtain regulatory approval for other product candidates.

We may rely on academic and private non-academic institutions to conduct and sponsor preclinical and clinical trials relating to our product candidates. We will not control the design or conduct of the investigator-sponsored trials, and it is possible that the FDA or non-U.S. regulatory authorities will not view these investigator-sponsored trials as providing adequate support for future preclinical and clinical trials, whether controlled by us or third parties, for any one or more reasons, including elements of the design or execution of the trials or safety concerns or other trial results. For example, we collaborate with, and rely on, academic centers to conduct preclinical and non-investigator-sponsored research and it is possible that the interests of such academic centers may not be aligned with our interests.

Such arrangements will likely provide us certain information rights with respect to the investigator-sponsored trials, including access to and the ability to use and reference the data, including for our own regulatory filings, resulting from the investigator-sponsored trials. However, we would not have control over the timing and reporting of the data from investigator-sponsored trials, nor would we own the data from the investigator-sponsored trials. If we are unable to confirm or replicate the results from the investigator-sponsored trials or if negative results are obtained, we would likely be further delayed or prevented from advancing further clinical development of our product candidates. Further, if investigators or institutions breach their obligations with respect to the clinical development of our product candidates, or if the data proves to be inadequate compared to the first-hand knowledge we might have gained had the investigator-sponsored trials been sponsored and conducted by us, then our ability to design and conduct any future preclinical or clinical trials ourselves may be adversely affected.

Additionally, the FDA or non-U.S. regulatory authorities may disagree with the sufficiency of our right of reference to the preclinical, manufacturing or clinical data generated by these investigator-sponsored trials, or our interpretation of preclinical, manufacturing or clinical data from these investigator-sponsored trials. If so, the FDA or other non-U.S. regulatory authorities may require us to obtain and submit additional preclinical, manufacturing, or clinical data before we may initiate our anticipated trials and/or may not accept such additional data as adequate to initiate our anticipated trials.

Our product candidates may cause undesirable side effects that could delay or prevent their regulatory approval or commercialization or have other significant adverse implications on our business, financial condition and results of operations.

Undesirable side effects observed in preclinical studies or in clinical trials with our product candidates could interrupt, delay or halt their development and could result in the denial of regulatory approval by the FDA, the EMA or comparable foreign authorities for any or all targeted indications or adversely affect the marketability of any product candidates developed using our PATrOL™ platform that receive regulatory approval. In turn, this could eliminate or limit our ability to commercialize our product candidates.

Our product candidates may exhibit adverse effects in preclinical toxicology studies and adverse interactions with other drugs. There are also risks associated with additional requirements the FDA, the EMA or comparable foreign authorities may impose for marketing approval with regard to a particular disease.

Our product candidates may require a risk management program that could include patient and healthcare provider education, usage guidelines, appropriate promotional activities, a post-marketing observational study and ongoing safety and reporting mechanisms, among other requirements. Prescribing could be limited to physician specialists or physicians trained in the use of the drug, or could be limited to a more restricted patient population. Any risk management program required for approval of our product candidates could potentially have an adverse effect on our business, financial condition and results of operations.

Undesirable side effects involving our product candidates may have other significant adverse implications on our business, financial condition and results of operations. For example:

- we may be unable to obtain additional financing on acceptable terms, if at all;
- our collaborators may terminate any development agreements covering these product candidates;

- if any development agreements are terminated, we may determine not to further develop the affected product candidates due to resource constraints and may not be able to establish additional collaborations for their further development on acceptable terms, if at all;
- if we were to later continue the development of these product candidates and receive regulatory approval, earlier findings may significantly limit their marketability and thus significantly lower our potential future revenues from their commercialization;
- we may be subject to product liability or stockholder litigation; and
- we may be unable to attract and retain key employees.

In addition, if any of our product candidates receive marketing approval and we or others later identify undesirable side effects caused by the product:

- regulatory authorities may withdraw their approval of the PATrOL™-enabled product, or we or our partners may decide to cease marketing and sale of the product voluntarily;
- we may be required to change the way the product is administered, conduct additional preclinical studies or additional clinical trials after initial clinical trials regarding the product, change the labeling of the product, or change the product’s manufacturing facilities; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the affected product and could substantially increase the costs and expenses of commercializing the product, which in turn could delay or prevent us from generating significant revenues from the sale of the product.

Delays in the commencement or completion of clinical trials could result in increased costs to us and delay our ability to establish strategic collaborations.

Delays in the commencement or completion of clinical trials could significantly impact our drug development costs. We do not know whether anticipated clinical trials will begin on time or be completed on schedule, if at all. The commencement of clinical trials can be delayed for a variety of reasons, including, but not limited to, delays related to:

- obtaining regulatory approval to commence one or more clinical trials;
- reaching agreement on acceptable terms with prospective third-party contract research organizations (“CROs”) and clinical trial sites;
- manufacturing sufficient quantities of a product candidate or other materials necessary to conduct clinical trials;
- changes in regulations as part of a response to the COVID-19 pandemic, which may require us to change the ways in which future clinical trials would otherwise be conducted;
- obtaining institutional review board approval to conduct one or more clinical trials at a prospective site;
- recruiting and enrolling patients to participate in one or more clinical trials; and
- the failure of our collaborators to adequately resource our product candidates due to their focus on other programs or as a result of general market conditions.

In addition, once a clinical trial has begun, it may be suspended or terminated by us, our collaborators, the institutional review boards or data safety monitoring boards charged with overseeing our clinical trials, the FDA, the EMA or comparable foreign authorities due to a number of factors, including:

- failure to conduct the clinical trial in accordance with regulatory requirements or clinical protocols;
- inspection of the clinical trial operations or clinical trial site by the FDA, the EMA or comparable foreign authorities resulting in the imposition of a clinical hold;
- unforeseen safety issues;
- lack of adequate funding to continue the clinical trials; and
- lack of patient enrollment in clinical studies.

If we experience delays in the completion or termination of any clinical trial of our product candidates, the commercial prospects of our product candidates will be harmed, and our ability to commence product sales and generate product revenues from any of our product candidates will be delayed. In addition, any delays in completing our clinical trials will increase our costs and slow down our product candidate development and approval process. Delays in completing our clinical trials could also allow our competitors to obtain marketing approval before we do or shorten the patent protection period during which we may have the exclusive right to commercialize our product candidates. Any of these occurrences may harm our business, financial condition and prospects significantly. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates.

If we experience delays in the enrollment of patients in our clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.

We may not be able to initiate or continue clinical trials for our product candidates if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or other regulatory authorities. Patient enrollment, a significant factor in the timing of clinical trials, is affected by many factors, including the size and nature of the patient population, the proximity of patients to clinical sites, the eligibility criteria for the trial, the design of the clinical trial, competing clinical trials and clinicians' and patients' perceptions as to the potential advantages of the drug being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating. In addition, the COVID-19 pandemic may negatively impact our ability to recruit and enroll patients for our clinical trials because they may be reluctant or unable to visit clinical sites, or may delay seeking treatment for chronic conditions.

If we fail to enroll and maintain the number of patients for which the clinical trial was designed, the statistical power of that clinical trial may be reduced, which would make it harder to demonstrate that the product candidate being tested in such clinical trial is safe and effective. Additionally, enrollment delays in our clinical trials may result in increased development costs for our product candidates, which would cause our value to decline and limit our ability to obtain additional financing. Our inability to enroll a sufficient number of patients for any of our future clinical trials would result in significant delays or may require us to abandon one or more clinical trials altogether.

We intend to rely on third parties to conduct our preclinical studies and clinical trials and perform other tasks. If these third parties do not successfully carry out their contractual duties, meet expected deadlines, or comply with regulatory requirements, we may not be able to obtain regulatory approval for or commercialize our product candidates and our business, financial condition and results of operations could be substantially harmed.

We intend to rely upon third-party CROs, medical institutions, clinical investigators and contract laboratories to monitor and manage data for our ongoing preclinical and anticipated clinical programs. Nevertheless, we maintain responsibility for ensuring that each of our preclinical studies are, and anticipated clinical studies will be, conducted in accordance with the applicable protocol, legal, regulatory, and scientific standards and our reliance on these third parties does not relieve the Company of our regulatory responsibilities. The Company and our CROs and other vendors are required to comply with current requirements on cGMP, good clinical practices ("GCP") and GLP, which are a collection of laws and regulations enforced by the FDA, the EMA and comparable foreign authorities for all of our product candidates in clinical development. Regulatory authorities enforce these regulations through periodic inspections of preclinical study and clinical trial sponsors, principal investigators, preclinical study and clinical trial sites, and other contractors. If we or any of our CROs or vendors fails to comply with applicable regulations, the data generated in our preclinical studies and clinical trials may be deemed unreliable and the FDA, the EMA or comparable foreign authorities may require us to perform additional preclinical studies and clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical trials comply with GCP regulations. In addition, our clinical trials must be conducted with products produced consistent with cGMP regulations. Our failure to comply with these regulations may require it to repeat clinical trials, which would delay the development and regulatory approval processes.

We may also not be able to enter into arrangements with CROs on commercially reasonable terms, or at all. In addition, our CROs will not be our employees, and except for remedies available to us under our agreements with such CROs, we will not be able to control whether or not they devote sufficient time and resources to our ongoing preclinical and clinical programs. If CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the data they obtain is compromised due to the failure to adhere to our protocols, regulatory requirements, or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to obtain regulatory approval for or successfully commercialize our product candidates. CROs may also generate higher costs than anticipated. As a result, our business, financial condition and results of operations and the commercial prospects for our product candidates could be materially and adversely affected, our costs could increase, and our ability to generate revenue could be delayed.

Switching or adding additional CROs, medical institutions, clinical investigators or contract laboratories involves additional cost and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work replacing a previous CRO. As a result, delays occur, which can materially impact our ability to meet our desired development timelines. There can be no assurance that we will not encounter similar challenges or delays in the future or that these delays or challenges will not have a material adverse effect on our business, financial condition or results of operations.

Our product candidates are subject to extensive regulation under the FDA, the EMA or comparable foreign authorities, which can be costly and time consuming, cause unanticipated delays or prevent the receipt of the required approvals to commercialize our product candidates.

The clinical development, manufacturing, labeling, storage, record-keeping, advertising, promotion, export, marketing and distribution of our product candidates are subject to extensive regulation by the FDA and other U.S. regulatory agencies, the EMA or comparable authorities in foreign markets. In the U.S., neither us nor our collaborators are permitted to market our product candidates until we or our collaborators receive approval of an NDA from the FDA or receive similar approvals abroad. The process of obtaining these approvals is expensive, often takes many years, and can vary substantially based upon the type, complexity and novelty of the product candidates involved. Approval policies or regulations may change and may be influenced by the results of other similar or competitive products, making it more difficult for us to achieve such approval in a timely manner or at all. Any guidance that may result from recent FDA advisory panel discussions may make it more expensive to develop and commercialize such product candidates. In addition, as a company, we have not previously filed NDAs with the FDA or filed similar applications with other foreign regulatory agencies. This lack of experience may impede our ability to obtain FDA or other foreign regulatory agency approval in a timely manner, if at all, for our product candidates for which development and commercialization is our responsibility.

Despite the time and expense invested, regulatory approval is never guaranteed. The FDA, the EMA or comparable foreign authorities can delay, limit or deny approval of a product candidate for many reasons, including:

- a product candidate may not be deemed safe or effective;

- agency officials of the FDA, the EMA or comparable foreign authorities may not find the data from non-clinical or preclinical studies and clinical trials generated during development to be sufficient;

- the FDA, the EMA or comparable foreign authorities may not approve our third-party manufacturers' processes or facilities; or

- the FDA, the EMA or a comparable foreign authority may change our approval policies or adopt new regulations.

Our inability to obtain these approvals would prevent us from commercializing our product candidates.

The FDA, the NIH and the EMA have demonstrated caution in their regulation of gene therapy treatments, and ethical and legal concerns about gene therapy and genetic testing may result in additional regulations or restrictions on the development and commercialization of our product candidates, which may be difficult to predict.

The FDA, National Institutes of Health ("NIH") and the EMA have each expressed interest in further regulating biotechnology, including gene therapy and genetic testing. For example, the EMA advocates a risk-based approach to the development of a gene therapy product. Agencies at both the federal and state level in the United States, as well as U.S. congressional committees and other governments or governing agencies, have also expressed interest in further regulating the biotechnology industry. Such action may delay or prevent commercialization of some or all of our product candidates.

Regulatory requirements in the U.S. and in other jurisdictions governing gene therapy products have changed frequently and may continue to change in the future. The FDA established the Office of Cellular, Tissue and Gene Therapies within its Center for Biologics Evaluation and Research to consolidate the review of gene therapy and related products, and established the Cellular, Tissue and Gene Therapies Advisory Committee to advise this review. Prior to submitting an IND, our human clinical trials will be subject to review by the NIH Office of Biotechnology Activities ("OBA") Recombinant DNA Advisory Committee (the "RAC"). Following an initial review, RAC members make a recommendation as to whether the protocol raises important scientific, safety, medical, ethical or social issues that warrant in-depth discussion at the RAC's quarterly meetings. Even though the FDA decides whether individual gene therapy protocols may proceed under an IND, the RAC's recommendations are shared with the FDA and 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 has not objected to its initiation or has notified the sponsor that the study may begin. Conversely, the FDA can put an IND on a clinical hold even if the RAC has provided a favorable review or has recommended against an in-depth, public review. Moreover, under guidelines published by the NIH, patient enrollment in our future gene silencing clinical trials cannot begin until the investigator for such clinical trial has received a letter from the OBA indicating that the RAC review process has been completed; and Institutional Biosafety Committee ("IBC") approval as well as all other applicable regulatory authorizations have been obtained. In addition to the government regulators, the IBC and IRB of each institution at which we will conduct clinical trials of our product candidates, or a central IRB if appropriate, would need to review the proposed clinical trial to assess the safety of the trial. In addition, adverse developments in clinical trials of gene therapy products conducted by others may cause the FDA or other oversight bodies to change the requirements for approval of any of our product candidates. Similarly, the EMA governs the development of gene therapies in the European Union and may issue new guidelines concerning the development and marketing authorization for gene therapy products and require that we comply with these new guidelines. These regulatory review agencies and committees and the new requirements or guidelines they promulgate may lengthen the regulatory review process, require us to perform additional studies or trials, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of our product candidates or lead to significant post-approval limitations or restrictions. As we advance our product candidates, we will be required to consult with these regulatory agencies and committees and comply with applicable requirements and guidelines. If we fail to do so, we may be required to delay or discontinue development of such product candidates. These additional processes may result in a review and approval process that is longer than we otherwise would have expected. Delays as a result of an increased or lengthier regulatory approval process or further restrictions on the development of our product candidates can be costly and could negatively impact our or our collaborators' ability to complete clinical trials and commercialize our current and future product candidates in a timely manner, if at all.

Even if our product candidates receive regulatory approval in the U.S., it may never receive approval or commercialize our products outside of the U.S.

In order to market any products outside of the U.S., we must establish and comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy. Approval procedures vary among countries and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries might differ from that required to obtain FDA approval. The regulatory approval process in other countries may include all of the risks detailed above regarding FDA approval in the U.S. as well as other risks. Regulatory approval in one country does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory process in others. Failure to obtain regulatory approval in other countries or any delay seeking or obtaining such approval would impair our ability to develop foreign markets for our product candidates.

Even if any of our product candidates receive regulatory approval, our product candidates may still face future development and regulatory difficulties.

If any of our product candidates receive regulatory approval, the FDA, the EMA or comparable foreign authorities may still impose significant restrictions on the indicated uses or marketing of the product candidates or impose ongoing requirements for potentially costly post-approval studies and trials. In addition, regulatory agencies subject a product, our manufacturer and the manufacturer's facilities to continual review and periodic inspections. If a regulatory agency discovers previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, a regulatory agency may impose restrictions on that product, our collaborators or us, including requiring withdrawal of the product from the market. Our product candidates will also be subject to ongoing FDA, EMA or comparable foreign authorities' requirements for the labeling, packaging, storage, advertising, promotion, record-keeping and submission of safety and other post-market information on the drug. If our product candidates fail to comply with applicable regulatory requirements, a regulatory agency may:

- issue warning letters or other notices of possible violations;

- impose civil or criminal penalties or fines or seek disgorgement of revenue or profits;

- suspend any ongoing clinical trials;

- refuse to approve pending applications or supplements to approved applications filed by us or our collaborators;

- withdraw any regulatory approvals;

- impose restrictions on operations, including costly new manufacturing requirements, or shut down our manufacturing operations; or

- seize or detain products or require a product recall.

The FDA, the EMA and comparable foreign authorities actively enforce the laws and regulations prohibiting the promotion of off-label uses.

The FDA, the EMA and comparable foreign authorities strictly regulate the promotional claims that may be made about prescription products, such as our product candidates, if approved. In particular, a product may not be promoted for uses that are not approved by the FDA, the EMA or comparable foreign authorities as reflected in the product's approved labeling. If we receive marketing approval for our product candidates for our proposed indications, physicians may nevertheless use our products for their patients in a manner that is inconsistent with the approved label, if the physicians personally believe in their professional medical judgment that our products could be used in such manner. However, if we are found to have promoted our product candidates, if approved, for any off-label uses, the federal government could levy civil, criminal or administrative penalties, and seek fines against us. Such enforcement has become more common in the industry. The FDA, the EMA or comparable foreign authorities could also request that we enter into a consent decree or a corporate integrity agreement, or seek a permanent injunction against us under which specified promotional conduct is monitored, changed or curtailed. If we cannot successfully manage the promotion of our product candidates, if approved, we could become subject to significant liability, which would materially adversely affect our business, financial condition and results of operations.

We and our potential contract manufacturers are subject to significant regulation with respect to manufacturing our product candidates. The manufacturing facilities on which we will rely may not continue to meet regulatory requirements.

All entities involved in the preparation of therapeutics for clinical trials or commercial sale, including our potential contract manufacturers for our product candidates, are subject to extensive regulation. Components of a finished therapeutic product approved for commercial sale or used in late-stage clinical trials must be manufactured in accordance with cGMP. These regulations govern manufacturing processes and procedures and the implementation and operation of quality systems to control and assure the quality of investigational products and products approved for sale. Poor control of production processes can lead to the introduction of contaminants or to inadvertent changes in the properties or stability of our product candidates that may not be detectable in final product testing. We or our potential contract manufacturers must supply all necessary documentation in support of an NDA or marketing authorization application ("MAA") on a timely basis and must adhere to GLP and cGMP regulations enforced by the FDA, the EMA or comparable foreign authorities through their facilities inspection program. Some of our potential contract manufacturers may not have produced a commercially approved pharmaceutical product and therefore may not have obtained the requisite regulatory authority approvals to do so. The facilities and quality systems of some or all of our potential third-party contractors must pass a pre-approval inspection for compliance with the applicable regulations as a condition of regulatory approval of our product candidates or any of our other potential product candidates. In addition, the regulatory authorities may, at any time, audit or inspect a manufacturing facility involved with the preparation of our product candidates or the associated quality systems for compliance with the regulations applicable to the activities being conducted. Although we plan to oversee the contract manufacturers, we cannot control the manufacturing process of, and will be completely dependent on, our contract manufacturing partners for compliance with applicable regulatory requirements. If these facilities do not pass a pre-approval plant inspection, regulatory approval of the product candidates may not be granted or may be substantially delayed until any violations are corrected to the satisfaction of the regulatory authority, if ever.

The regulatory authorities also may, at any time following approval of a product for sale, audit the manufacturing facilities of our potential third-party contractors. If any such inspection or audit identifies a failure to comply with applicable regulations or if a violation of our product specifications or applicable regulations occurs independent of such an inspection or audit, we or the relevant regulatory authority may require remedial measures that may be costly or time consuming for us or a third party to implement, and that may include the temporary or permanent suspension of a clinical trial or commercial sales or the temporary or permanent closure of a facility. Any such remedial measures imposed upon us or third parties with whom we may contract could materially harm our business, financial condition and results of operations.

If we or any of our potential third-party manufacturers fail to maintain regulatory compliance, the FDA, the EMA or comparable foreign authorities can impose regulatory sanctions including, among other things, refusal to approve a pending application for a product candidate, withdrawal of an approval, or suspension of production. As a result, our business, financial condition and results of operations may be materially and adversely affected.

Additionally, if supply from one manufacturer is interrupted, an alternative manufacturer would need to be qualified through an NDA supplement or MAA variation, or equivalent foreign regulatory filing, which could result in further delay. The regulatory agencies may also require additional studies or trials if a new manufacturer is relied upon for commercial production. Switching manufacturers may involve substantial costs and is likely to result in a delay in our desired clinical and commercial timelines.

These factors could cause us to incur higher costs and could cause the delay or termination of clinical trials, regulatory submissions, required approvals, or commercialization of our product candidates. Furthermore, if our suppliers fail to meet contractual requirements and we are unable to secure one or more replacement suppliers capable of production at a substantially equivalent cost, our clinical trials may be delayed or we could lose potential revenue.

Current and future legislation may increase the difficulty and cost of commercializing our product candidates and may affect the prices we may obtain if our product candidates are approved for commercialization.

In the U.S. and some foreign jurisdictions, there have been a number of adopted and proposed legislative and regulatory changes regarding the healthcare system that could prevent or delay regulatory approval of our product candidates, restrict or regulate post-marketing activities and affect our ability to profitably sell any of our product candidates for which we obtain regulatory approval.

In the U.S., the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 ("MMA") changed the way Medicare covers and pays for pharmaceutical products. Cost reduction initiatives and other provisions of this legislation could limit the coverage and reimbursement rate that we receive for any of our approved product candidates. While the MMA only applies to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policy and payment limitations in setting their own reimbursement rates. Therefore, any reduction in reimbursement that results from the MMA may result in a similar reduction in payments from private payors.

In March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010 (collectively the "ACA"), was enacted. The ACA was intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against healthcare fraud and abuse, add new transparency requirements for healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms. The ACA increased manufacturers' rebate liability under the Medicaid Drug Rebate Program by increasing the minimum rebate amount for both branded and generic drugs and revised the definition of "average manufacturer price" ("AMP"), which may also increase the amount of Medicaid drug rebates manufacturers are required to pay to states. The legislation also expanded Medicaid drug rebates and created an alternative rebate formula for certain new formulations of certain existing products that is intended to increase the rebates due on those drugs. The Centers for Medicare & Medicaid Services, which administers the Medicaid Drug Rebate Program, also has proposed to expand Medicaid rebates to the utilization that occurs in the territories of the U.S., such as Puerto Rico and the Virgin Islands. Further, beginning in 2011, the ACA imposed a significant annual fee on companies that manufacture or import branded prescription drug products. Legislative and regulatory proposals have been introduced at both the state and federal level to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products.

There have been recent public announcements by members of the U.S. Congress, President Trump and his administration regarding their plans to repeal and replace the ACA and Medicare. For example, on December 22, 2017, President Trump signed into law the Tax Cuts and Jobs Act of 2017, which, among other things, eliminated the individual mandate requiring most Americans (other than those who qualify for a hardship exemption) to carry a minimum level of health coverage, effective January 1, 2019. We are not sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing approval testing and other requirements.

Additionally, there has been heightened governmental scrutiny in the U.S. of pharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. At the federal level, the Trump administration's budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Further, the Trump administration released a "Blueprint," or plan, to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase drug manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products, and reduce the out of pocket costs of drug products paid by consumers. The U.S. Department of Health and Human Services has already started the process of soliciting feedback on some of these measures and, at the same, is immediately implementing others under its existing authority. While some proposed measures will require authorization through additional legislation to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures are increasingly 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.

We expect that these and 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 receive for any approved drug. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our drugs.

In June 2016, the United Kingdom ("UK") held a referendum pursuant to which voters elected to leave the European Union ("EU"), commonly referred to as Brexit. The UK formally left the EU on January 31, 2020 and began a transition period that is scheduled to end on December 31, 2020. During the transition period, the UK remains subject to EU law while they negotiate their future relationship with the EU, but is no longer part of the EU's political institutions and agencies. Although the long-term effects of Brexit will depend on any agreements the UK makes to retain access to the EU markets, Brexit has created additional uncertainties that may ultimately result in new regulatory costs and challenges for biotechnology companies. We cannot predict what consequences the withdrawal of the United Kingdom from the European Union, if it occurs, might have on the regulatory frameworks of the United Kingdom or the European Union, or on our future operations, if any, in these jurisdictions.

Changes in government funding for the FDA and other government agencies could hinder their ability to hire and retain key leadership and other personnel, properly administer drug innovation, or prevent our product candidates from being developed or commercialized, which could negatively impact our business, financial condition and results of operations.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including budget and funding levels, ability to hire and retain key personnel, and statutory, regulatory and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of other agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable.

In December 2016, the 21st Century Cures Act was signed into law. This new legislation is designed to advance medical innovation and empower the FDA with the authority to directly hire positions related to drug and device development and review. However, government proposals to reduce or eliminate budgetary deficits may include reduced allocations to the FDA and other related government agencies. These budgetary pressures may result in a reduced ability by the FDA to perform their respective roles; including the related impact to academic institutions and research laboratories whose funding is fully or partially dependent on both the level and timing of funding from government sources.

Disruptions at the FDA and other agencies may also slow the time necessary for our product candidates to be reviewed or approved by necessary government agencies, which could adversely affect our business, financial condition and results of operations.

We are subject to "fraud and abuse" and similar laws and regulations, and a failure to comply with such regulations or prevail in any litigation related to noncompliance could harm our business, financial condition and results of operations.

In the U.S., we are subject to various federal and state healthcare "fraud and abuse" laws, including anti-kickback laws, false claims laws and other laws intended, among other things, to reduce fraud and abuse in federal and state healthcare programs. The federal Anti-Kickback Statute makes it illegal for any person, including a prescription drug manufacturer, or a party acting on its behalf, to knowingly and willfully solicit, receive, offer or pay any remuneration that is intended to induce the referral of business, including the purchase, order or prescription of a particular drug, or other good or service for which payment in whole or in part may be made under a federal healthcare program, such as Medicare or Medicaid. Although we seek to structure our business arrangements in compliance with all applicable requirements, these laws are broadly written, and it is often difficult to determine precisely how the law will be applied in specific circumstances. Accordingly, it is possible that our practices may be challenged under the federal Anti-Kickback Statute.

The federal False Claims Act prohibits anyone from, among other things, knowingly presenting or causing to be presented for payment to the government, including the federal healthcare programs, claims for reimbursed drugs or services that are false or fraudulent, claims for items or services that were not provided as claimed, or claims for medically unnecessary items or services. Under the Health Insurance Portability and Accountability Act of 1996, we are prohibited from knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private payors, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services to obtain money or property of any healthcare benefit program. Violations of fraud and abuse laws may be punishable by criminal or civil sanctions, including penalties, fines or exclusion or suspension from federal and state healthcare programs such as Medicare and Medicaid and debarment from contracting with the U.S. government. In addition, private individuals have the ability to bring actions on behalf of the government under the federal False Claims Act as well as under the false claims laws of several states.

Many states have adopted laws similar to the federal Anti-Kickback Statute, some of which apply to the referral of patients for healthcare services reimbursed by any source, not just governmental payors. In addition, some states have passed laws that require pharmaceutical companies to comply with the April 2003 Office of Inspector General Compliance Program Guidance for Pharmaceutical Manufacturers or the Pharmaceutical Research and Manufacturers of America's Code on Interactions with Healthcare Professionals. Several states also impose other marketing restrictions or require pharmaceutical companies to make marketing or price disclosures to the state. There are ambiguities as to what is required to comply with these state requirements and if we fail to comply with an applicable state law requirement, we could be subject to penalties.

Neither the government nor the courts have provided definitive guidance on the application of fraud and abuse laws to our business. Law enforcement authorities are increasingly focused on enforcing these laws, and it is possible that some of our practices may be challenged under these laws. Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. If we are found in violation of one of these laws, we could be subject to significant civil, criminal and administrative penalties, damages, fines, exclusion from governmental funded federal or state healthcare programs and the curtailment or restructuring of our operations. If this occurs, our business, financial condition and results of operations may be materially adversely affected.

If we face allegations of noncompliance with the law and encounter sanctions, our reputation, revenues and liquidity may suffer, and any of our product candidates that are ultimately approved for commercialization could be subject to restrictions or withdrawal from the market.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response, and could generate negative publicity. Any failure to comply with ongoing regulatory requirements may significantly and adversely affect our ability to generate revenues from any of our product candidates that are ultimately approved for commercialization. If regulatory sanctions are applied or if regulatory approval is withdrawn, our business, financial condition and results of operations will be adversely affected. Additionally, if we are unable to generate revenues from product sales, our potential for achieving profitability will be diminished and our need to raise capital to fund our operations will increase.

Risks Related to Our Common Stock

The market price of our common stock is expected to be volatile

The trading price of our stock is likely to be volatile. Our stock price could be subject to wide fluctuations in response to a variety of factors, including the following:

- our ability to conduct and achieve continued positive outcomes from our preclinical activities on the PATrOL™ platform and disease specific programs;
- public health crises, pandemics and epidemics, such as a novel strain of coronavirus (COVID-19) and their effects on our preclinical activities;
- results from, costs, and any delays in, anticipated preclinical and clinical studies;
- contracting with third parties such as academic institutions, and various CROs who will perform such studies, or the potential lack of performance of such organizations;
- acceptance of INDs by the FDA or similar regulatory filing by comparable foreign regulatory authorities for the conduct of clinical trials of our product candidates and our proposed design of future clinical trials;
- delays in publications of research findings;
- significant lawsuits, including patent or stockholder litigation;
- inability to obtain additional funding or funding on favorable terms;
- failure to successfully develop and commercialize our product candidates;
- changes in laws or regulations applicable to our product candidates;
- inability to obtain adequate product supply for our product candidates, or the inability to do so at acceptable prices or in an acceptable timeframe;
- unanticipated serious safety concerns related to our PATrOL™ platform or any of our product candidates;
- adverse regulatory decisions;
- introduction of new products or technologies by our competitors;
- adverse events or results for our competitors or our product candidate target areas that could generally adversely affect us our or our industry;
- failure to meet or exceed drug development or financial projections we provide to the public;
- failure to meet or exceed the estimates, expectations and projections of the investment community and our stockholders;
- the perception of the pharmaceutical industry by the public, legislatures, regulators and the investment community;
- announcements of significant acquisitions, strategic partnerships, joint ventures or capital commitments by us or our competitors;

- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our licensed and owned technologies;
- additions or departures of key scientific or management personnel;

- changes in the market valuations of similar companies;
- general economic and market conditions and overall fluctuations in the U.S. equity market;
- sales of our common stock by us or our stockholders in the future;
- trading volume of our common stock;
- period-to-period fluctuations in our financial results;
- any identified material weakness in our internal control over financial reporting;
- changes in the structure of health care payments;
- changes in the Nasdaq listing of our stock; and
- recommendations of equity analysts covering our stock.

In addition, the stock market, and equity values of small pharmaceutical companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of these companies. Broad market and industry factors may negatively affect the market price of our common stock, regardless of our actual operating performance. Further, a decline in the financial markets and related factors beyond our control may cause our stock price to decline rapidly and unexpectedly.

In the past, following periods of volatility in the market price of a company's securities, stockholders have often instituted class action securities litigation against those companies. Such litigation, if instituted, could result in substantial costs and diversion of management attention and resources, which could significantly harm our profitability and reputation.

As previously disclosed in our Annual Report on Form 10-K for the fiscal year ended September 30, 2019 (the "2019 Form 10-K"), in connection with the preparation of the Company's consolidated financial statements for the fiscal year ended September 30, 2019, but prior to the issuance of such financial statements, the Company determined the accounting treatment and valuations pertaining to the PATrOL™ technology license acquired during the first quarter of fiscal 2019 should be modified. The 2019 Form 10-K disclosed that the change in accounting treatment and valuations resulted in an increase in total operating expenses of approximately $0.9 million on the Company's consolidated statements of operations for the fiscal year ended September 30, 2019 and a decrease in intangible assets of approximately $1.5 million on the Company's consolidated balance sheet as of and for the fiscal year ended September 30, 2019, as well as a decrease in total operating expenses of approximately $0.3 million on the Company's consolidated statements of operations in connection with the adjustment of the valuation of certain share-based awards for the fiscal year ended September 30, 2019.

In addition, the Company identified an error in one of the Black-Scholes option pricing model assumptions, utilized in calculating the fair value of a stock option award granted during the year ended September 30, 2019, which resulted in an overstatement of share-based compensation expense. The Company concluded that the error was not material to any prior annual or interim period. Nevertheless, the Company has revised its historical financial statements to properly reflect the fair value of options granted in the prior period.

If we are required to restate any of our financial statements in the future due to our inability to adequately remedy the issues that gave rise to these modifications or for any other reason, we may be subject to regulatory penalties and investors could lose confidence in the accuracy and completeness of our financial statements, which could cause our share price to decline.

Our management owns a significant percentage of our stock and is able to exert significant control over matters subject to stockholder approval.

Dr. Stephan, our President, Chief Executive Officer and a director of us, holds a significant number of shares of our outstanding common stock and an option to purchase additional shares of common stock. Accordingly, Dr. Stephan has the ability to influence us through his ownership position.

This significant concentration of stock ownership may adversely affect the trading price for our common stock because investors often perceive disadvantages in owning stock in companies with controlling stockholders. As a result, Dr. Stephan could significantly influence all matters requiring approval by our stockholders, including the election of directors and the approval of mergers or other business combination transactions. Dr. Stephan may be able to determine all matters requiring stockholder approval. The interests of these stockholders may not always coincide with our interests or the interests of other stockholders. This may also prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may feel are in your best interests as one of our stockholders, and he may act in a manner that advances his best interests and not necessarily those of other stockholders, including seeking a premium value for his common stock, and might affect the prevailing market price for our common stock.

We previously identified a material weakness in our internal control over financial reporting, which has been remediated. If we identify additional material weaknesses in the future or otherwise fail to maintain an effective system of internal controls, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect our business and stock price.

We previously identified a material weakness in our internal control over financial reporting that was unremediated as of September 30, 2019. Although this material weakness was remediated as of September 30, 2020 as discussed in Item 9A of Part II of this Form 10-K, we cannot assure you that we will not identify another material weakness in the future. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected in a timely basis.

As previously disclosed in our 2019 Form 10-K, in connection with the preparation of our financial statements for such fiscal year, our management and the Audit Committee of our board of directors determined that our accounting treatment and valuations pertaining to the PATrOL™ technology license should be modified. In connection with such revisions, our management identified a material weakness in our internal control over financial reporting due to a lack of expertise in complex accounting transactions, which were not operating effectively to provide reasonable assurance that complex transactions were accounted for correctly. We subsequently restated our unaudited condensed consolidated statements of operations and our unaudited condensed consolidated balance sheets as of and for the three months ended December 31, 2018 and as of and for the three and six months ended March 31, 2019 upon the filing of our Quarterly Reports on Form 10-Q for such periods. As discussed in Item 9A of Part II of this Form 10-K, we took remedial measures during fiscal 2019 and throughout fiscal 2020 to remediate this material weakness.

We cannot assure you that the measures we have taken to date, and actions we may take in the future, will be sufficient to prevent or avoid potential future material weaknesses. In connection with the implementation of the necessary procedures and practices related to internal control over financial reporting, we may identify material weaknesses that we may not be able to remediate in time to meet the deadline imposed by the Sarbanes-Oxley Act for compliance with the requirements of Section 404. In addition, we may encounter problems or delays in completing the implementation of any improvements and receiving a favorable attestation by our independent registered public accounting firm, if and when required.

If we are unable to achieve and maintain an effective internal control environment in our disclosure controls or internal control over financial reporting, the accuracy and timing of our financial reporting may be adversely affected; our liquidity, our access to capital markets and our ability to complete acquisitions may be adversely affected; we may be unable to maintain or regain compliance with applicable securities laws, The Nasdaq Stock Market LLC ("Nasdaq") listing requirements, and the covenants under certain agreements regarding the timely filing of periodic reports; we may be subject to regulatory investigations and penalties; investors may lose confidence in our financial reporting; and our stock price may decline.

We restated our previously issued unaudited financial statements for the three months ended December 31, 2019 and the three and six months ended March 31, 2019. As a result, and if we identify errors in our financial reporting in the future that require us to restate other previously issued financial statements, such restatements may subject us to unanticipated costs or regulatory penalties and could cause investors to lose confidence in the accuracy and completeness of our financial statements, which could cause the price of our common stock to decline.

As discussed further in our Quarterly Reports on Form 10-Q for the quarters ended December 31, 2019 and March 31, 2020, we restated our unaudited condensed consolidated financial statements and related disclosures for the three months ended December 31, 2018 and the three and six months ended March 31, 2019, following the identification of misstatements therein in connection with the preparation of our financial statements for the quarterly period ended December 31, 2019. The misstatements were quantitatively material to the period presented in such prior financial statements, and we determined that it would be appropriate to correct the misstatements in such previously issued interim financial statements by restating such financial statements. We may be subject to unanticipated costs and regulatory penalties and investors could lose confidence in the accuracy and completeness of our financial statements, which could cause our share price to decline, due to such restatement and if we are required to restate any of our other financial statements in the future.

As a result of our failure to timely file our Quarterly Report on Form 10-Q for the quarter ended December 31, 2019, we are currently ineligible to file new short form registration statements on Form S-3, which may impair our ability to raise capital on terms favorable to us, in a timely manner or at all.

Form S-3 permits eligible issuers to conduct registered offerings using a short form registration statement that allows the issuer to incorporate by reference its past and future filings and reports made under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). In addition, Form S-3 enables eligible issuers to conduct primary offerings "off the shelf" under Rule 415 of the Securities Act of 1933, as amended (the "Securities Act"). The shelf registration process, combined with the ability to forward incorporate information, allows issuers to avoid delays and interruptions in the offering process and to access the capital markets in a more expeditions and efficient manner than raising capital in a standard registered offering pursuant to a registration statement on Form S-1. The ability to newly register securities for resale may also be limited as a result of the loss of Form S-3 eligibility with respect to such registrations.

As previously disclosed in our 2019 Form 10-K, in connection with the preparation of the Company's consolidated financial statements for the fiscal year ended September 30, 2019, but prior to the issuance of such financial statements, the Company determined the accounting treatment and valuations pertaining to the PATrOL™ technology license acquired during the first quarter of fiscal 2019 should be modified. The 2019 Form 10-K disclosed that the change in accounting treatment and valuations resulted in an increase in total operating expenses of approximately $0.9 million on the Company's consolidated statements of operations for the fiscal year ended September 30, 2019 and a decrease in intangible assets of approximately $1.5 million on the Company's consolidated balance sheet as of and for the fiscal year ended September 30, 2019, as well as a decrease in total operating expenses of approximately $0.3 million on the Company's consolidated statements of operations in connection with the adjustment of the valuation of certain share-based awards for the fiscal year ended September 30, 2019. In addition, on February 12, 2020, we dismissed our former independent registered public accounting firm. Accordingly, we were unable to complete the compilation, analysis and review of information required to be included in our Quarterly Report on Form 10-Q for the quarter ended December 31, 2019 until after the deadline for such filing.

As a result of our failure to timely file our Quarterly Report on Form 10-Q for the quarter ended December 31, 2019, we are currently ineligible to file new short form registration statements on Form S-3, and, absent a waiver of the Form S-3 eligibility requirements, we will no longer be permitted to use our existing registration statements on Form S-3 upon the earlier to occur of the expiration of such registration statements on Form S-3, the filing of this Form 10-K or the occurrence of a fundamental change which would require a post-effective amendment to any such registration statements pursuant to Item 512 of Regulation S-K and Section 10(a)(3) of the Securities Act. As a consequence, we might not be permitted to sell all of the amount of common stock we could otherwise sell prior to such time, which could adversely affect our ability to run our operations and progress our clinical and product development programs. We will not be permitted to conduct an "at the market offering" absent an effective primary registration statement on Form S-3.

Our inability to file new registration statements on Form S-3 may significantly impair our ability to raise necessary capital to run our operations and progress our clinical and product development programs. If we seek to access the capital markets through a registered offering during the period of time that we are unable to file a new registration statement on Form S-3, we may be required to publicly disclose the proposed offering and the material terms thereof before the offering commences, we may experience delays in the offering process due to SEC review of a Form S-1 registration statement and we may incur increased offering and transaction costs and other considerations. Disclosing a public offering prior to the formal commencement of an offering may result in downward pressure on our stock price. If we are unable to raise capital through a registered offering, we would be required to conduct our equity financing transactions on a private placement basis, which may be subject to pricing, size and other limitations imposed under Nasdaq rules, or seek other sources of capital.

Absent a waiver of the Form S-3 eligibility requirements and assuming we continue to timely file our required Exchange Act reports, the earliest we would regain the ability to file a new registration statement on Form S-3 is April 1, 2021.

We may take advantage of specified reduced disclosure requirements applicable to a "smaller reporting company" under Regulation S-K, and the information that we provide to stockholders may be different than they might receive from other public companies.

We are a "smaller reporting company," as defined under Regulation S-K. As a smaller reporting company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include, among other things, scaled disclosure requirements, including about our executive compensation arrangements.

We intend to continue to take advantage of certain of the scaled disclosure requirements of smaller reporting companies. We may continue to take advantage of these allowances until we are no longer a smaller reporting company. We will cease to be a smaller reporting company if we have (i) more than $250 million in market value of our shares held by non-affiliates as of the last business day of our second fiscal quarter or (ii) more than $100 million of annual revenues in our most recent fiscal year completed before the last business day of our second fiscal quarter and a market value of our shares held by non-affiliates more than $700 million as of the last business day of our second fiscal quarter. We may choose to take advantage of some but not all of these scaled disclosure requirements. Therefore, the information that we provide stockholders may be different than one might get from other public companies. Further, if some investors find our shares of common stock less attractive as a result, there may be a less active trading market for our shares of common stock and the market price of such shares of common stock may be more volatile.

If securities or industry analysts do not publish research, or publish inaccurate or unfavorable research, about our business, our stock price and trading volume could decline.

The trading market for our common stock depends, in part, on the research and reports that securities or industry analysts publish about us or our business. If one or more of the analysts who cover us downgrade our stock or publish inaccurate or unfavorable research about our business, our stock price would likely decline. In addition, if our operating results fail to meet the forecast of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, demand for our common stock could decrease, which might cause our stock price and trading volume to decline.

Sales of a substantial number of shares of our common stock in the public market by our stockholders, future issuances of our common stock or rights to purchase our common stock, could cause our stock price to fall.

Sales of a substantial number of shares of our common stock by our existing stockholders in the public market, or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. We are unable to predict the effect that such sales may have on the prevailing market price of our common stock.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and the federal district courts of the United States are the exclusive forums for substantially all disputes between us and our stockholders other than actions arising under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a breach of fiduciary duty;
- any action asserting a claim against us arising under the General Corporation Law of the State of Delaware (the "DGCL"), our amended and restated certificate of incorporation or our amended and restated bylaws; and
- any action asserting a claim against us that is governed by the internal-affairs doctrine.

These exclusive-forum provisions do not apply to claims under the Securities Act, the Exchange Act or any other claims for which the federal courts have exclusive jurisdiction.

These exclusive 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 lawsuits against us and our directors, officers, and other employees. If a court were to find either exclusive forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, it may incur additional costs associated with resolving the dispute in other jurisdictions, which could harm our business.

We are subject to securities class action litigation and derivative shareholder litigation. If an unfavorable ruling were to occur, there exists the possibility of a material adverse impact on us.

On February 14, 2018, plaintiff Jeevesh Khanna, commenced an action in the Southern District of New York, against Ohr and several current and former officers and directors, alleging that they violated federal securities laws between June 24, 2014 and January 4, 2018. On August 7, 2018, the lead plaintiffs, now George Lehman and Insured Benefit Plans, Inc., filed an amended complaint, stating the class period to be April 8, 2014 through January 4, 2018. The plaintiffs did not quantify any alleged damages in their complaint but, in addition to attorneys' fees and costs, they seek to maintain the action as a class action and to recover damages on behalf of themselves and other persons who purchased or otherwise acquired Ohr common stock during the putative class period and purportedly suffered financial harm as a result. We and the individuals dispute these claims and intend to defend the matter vigorously. On September 17, 2018, Ohr filed a motion to dismiss the complaint. On September 20, 2019, the district court entered an order granting the defendants' motion to dismiss. On October 23, 2019, the plaintiffs filed a notice of appeal of that order dismissing the action and other related orders by the district court. After full briefing and oral argument, on October 9, 2020, the U.S. Court of Appeals for the Second Circuit issued a summary order affirming the district court's order granting the motion to dismiss and remanding the action to the district court to make a determination on the record related to plaintiffs' request for leave to file an amended complaint. On October 16, 2020, the district court requested the parties' positions as to how they proposed to proceed in light of the Second Circuit's decision. After letter briefing on this issue and plaintiffs' alternative request for leave to file a second amended complaint, on November 16, 2020, the district court denied plaintiffs' request to amend and dismissed with prejudice plaintiffs' claims. On December 16, 2020, plaintiffs filed a notice of appeal of that order denying plaintiffs leave to amend. The Company cannot predict at this time whether plaintiffs will choose to pursue any appeal or modification of the dismissal order within the applicable time period. This litigation could result in substantial costs and a diversion of management's resources and attention, which could harm the Company's business and the value of the Company's common stock.

On May 3, 2018, plaintiff Adele J. Barke, derivatively on behalf of Ohr, commenced an action against certain former directors of Ohr, including Michael Ferguson, Orin Hirschman, Thomas M. Riedhammer, June Almenoff and Jason S. Slakter in the Supreme Court, State of New York, alleging that the action was brought in the right and for the benefit of Ohr seeking to remedy their "breach of fiduciary duties, corporate waste and unjust enrichment that occurred between June 24, 2014 and the present." It does not quantify any alleged damages. We and the individuals dispute these claims and intend to defend the matter vigorously. Such litigation has been stayed pursuant to a stipulation by the parties, which has been so ordered by the court, pending a decision in the Southern District case on the motion to dismiss, but that status could change. This litigation could result in substantial costs and a diversion of management's resources and attention, which could harm our business and the value of our common stock.

On March 20, 2019, a putative class action lawsuit was filed in the United States District Court for District of Delaware naming as defendants Ohr and its board of directors, Legacy NeuBase and Ohr Acquisition Corp., captioned *Wheby v. Ohr Pharmaceutical, Inc., et al*, Case No. 1:19-cv-00541-UNA (the "Wheby Action"). The plaintiffs in the Wheby Action allege that the preliminary joint proxy/prospectus statement filed by Ohr with the SEC on March 8, 2019 contained false and misleading statements and omitted material information in violation of Section 14(a) of the Exchange Act and SEC Rule 14a-9 promulgated thereunder, and further that the individual defendants are liable for those alleged misstatements and omissions under Section 20(a) of the Exchange Act. The complaint in the Wheby Action has not been served on, nor was service waived by, any of the named defendants in that action. The action seeks, among other things, to rescind the Merger or an award of damages, and an award of attorneys' and experts' fees and expenses. The defendants dispute the claims raised in the Wheby Action. Management believes that the likelihood of an adverse decision from the sole remaining action is unlikely; however, the litigation could result in substantial costs and a diversion of management's resources and attention, which could harm our business and the value of our common stock.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of the Company more difficult and may prevent attempts by our stockholders to replace or remove our management.

Provisions in our amended and restated certificate of incorporation and amended and restated bylaws may significantly reduce the value of shares of our common stock to a potential acquirer or delay or prevent an acquisition or a change in management without the consent of our board of directors. The provisions in our amended and restated certificate of incorporation and amended and restated bylaws include the following:

- a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive rights of our board of directors to establish the authorized number of directors and to elect a director to fill a vacancy created by the expansion of our board of directors or the death, resignation, disqualification, retirement or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- a provision that directors may be removed by our stockholders only for cause;
- the ability of our board of directors to authorize the issuance of shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquirer;

- the ability of our board of directors to make, alter or appeal our amended and restated bylaws without obtaining stockholder approval;
- the affirmative vote of the holders of at least 66 2/3% of the voting power of all of the then-outstanding shares of our capital stock entitled to vote generally in the election of directors is required to amend, alter, repeal or adopt any provision inconsistent with, several of the provisions of our amended and restated certificate of incorporation and amended and restated bylaws;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by our board of directors, chief executive officer or president, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- a restriction on the forum for certain litigation against us to Delaware; and
- advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

Although we believe these provisions collectively will provide for an opportunity to receive higher bids by requiring potential acquirers to negotiate with our board of directors, they would apply even if the offer may be considered beneficial by some stockholders. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove then current management by making it more difficult for stockholders to replace members of the board of directors, which is responsible for appointing the members of management.

Certain provisions of the DGCL deter hostile takeovers. Specifically, Section 203 of the DGCL prohibits a Delaware corporation from engaging in a business combination with an "interested stockholder" for a period of three years following the date the person first became an interested stockholder, unless (with certain exceptions) the business combination or the transaction by which the person became an interested stockholder is approved in a prescribed manner. Generally, a "business combination" includes a merger, asset or stock sale, or certain other transactions resulting in a financial benefit to the interested stockholder. Generally, an "interested stockholder" is a person who, together with affiliates and associates, beneficially owns or within three years prior to becoming an "interested stockholder" did own, 15% or more of a corporation's outstanding voting stock. While this statute permits a corporation to opt out of these protective provisions in its certificate of incorporation, our certificate of incorporation does not include any such opt-out provision.

Claims for indemnification by our directors and officers may reduce our available funds to satisfy successful third-party claims against us and may reduce the amount of money available to us.

Our amended and restated certificate of incorporation provides that we will indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law.

In addition, as permitted by Section 145 of the General Corporation Law of the State of Delaware, or the DGCL, our amended and restated certificate of incorporation and our indemnification agreements that we have entered into with our directors and officers provide that:

- We will indemnify our directors and officers for serving us in those capacities or for serving other business enterprises at our request, to the fullest extent permitted by Delaware law. Delaware law provides that a corporation may indemnify such person if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the registrant and, with respect to any criminal proceeding, had no reasonable cause to believe such person's conduct was unlawful.

- We may, in our discretion, indemnify employees and agents in those circumstances where indemnification is permitted by applicable law.
- We are required to advance expenses actually and reasonably incurred by our directors and officers in connection with any proceeding, except that such directors or officers shall undertake to repay such advances if it is ultimately determined by a court of competent jurisdiction that such person is not entitled to indemnification.
- We will not be obligated pursuant to our amended and restated certificate of incorporation to indemnify a person with respect to proceedings initiated by that person against us or our other indemnitees, except with respect to proceedings authorized by our board of directors or brought to enforce a right to indemnification.

- The rights to indemnification conferred in our amended and restated certificate of incorporation are not exclusive, and we are authorized to enter into indemnification agreements with our directors, officers, employees and agents and to obtain insurance to indemnify such persons.

- We may not retroactively amend our amended and restated certificate of incorporation provisions to reduce our indemnification obligations to current or former directors or officers.

Our indemnification obligations could result in substantial expenditures by us, which we will be unable to recover.

Our pre-Merger net operating loss carryforwards and certain other tax attributes will likely be subject to limitations. The pre-Merger net operating loss carryforwards and certain other tax attributes of us may also be subject to limitations as a result of ownership changes resulting from the Merger.

In general, a corporation that undergoes an "ownership change," as defined in Section 382 of the Internal Revenue Code of 1986, as amended, is subject to limitations on its ability to utilize its pre-change net operating losses ("NOLs") to offset future taxable income (the "Section 382 Limitation"). Such an ownership change occurs if the aggregate stock ownership of certain stockholders, generally stockholders beneficially owning five percent or more of a corporation's common stock, applying certain look-through and aggregation rules, increases by more than 50 percentage points over such stockholders' lowest percentage ownership during the testing period, generally three years. Due to the ownership change of the Company upon completion of the Merger, our NOLs and certain other tax attributes will be subject to the Section 382 Limitation. Consequently, even if we achieve profitability, we may not be able to utilize a material portion of our NOLs and certain other tax attributes because of the Section 382 Limitation, which could have a material adverse effect on cash flow and results of operations. As of September 30, 2020, we estimated that we had approximately $20.0 million in NOL carryforwards. We have not completed an analysis regarding the limitation of net operating loss carryforwards, however, it is likely that the Section 382 Limitation will cause a significant portion of our NOL carryforwards to never be utilized. In addition, if we are determined to have discontinued our historic business following the completion of the Merger, subject to certain exceptions, the Section 382 Limitation could eliminate all possibility of utilizing our NOL carryforwards.

We may never pay dividends on our common stock so any returns would be limited to the appreciation of our stock.

We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate we will declare or pay any cash dividends for the foreseeable future. In addition, the terms of any future debt agreements may preclude us from paying dividends. Any return to stockholders will therefore be limited to the appreciation of their stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We currently lease approximately 2,350 square feet of office and laboratory space at our headquarters in Pittsburgh, Pennsylvania. Our laboratory space is used in our research and development program activities in Pittsburgh, Pennsylvania and accommodates our anticipated workforce and near-term growth needs. The lease terms are at the current prevailing market rates per square foot and expire at the end of calendar 2020. We believe that our leased facilities are generally well maintained and in good operating condition and that the space is suitable and sufficient for our current operational needs.

In October 2020, we entered into a lease for approximately 14,189 square feet of office and laboratory space in Pittsburgh, Pennsylvania, which will become our new headquarters. This laboratory space will be used in our research and development program activities in Pittsburgh, Pennsylvania and will accommodate our anticipated workforce and near-term growth needs. The lease terms are at the current prevailing market rates per square foot and for a term of ten years, with an opportunity for us to extend the lease by additional five-year terms. We believe that our leased facilities are generally well maintained and in good operating condition and that the space is suitable and sufficient for our operational needs. The Company expects to move into the new headquarters at the end of the first calendar quarter of 2021.

ITEM 3. LEGAL PROCEEDINGS

We have become involved in certain legal proceedings and claims which arise in the normal course of business. If an unfavorable ruling were to occur, there exists the possibility of a material adverse impact on our results of operations, prospects, cash flows, financial position and brand.

On February 14, 2018, plaintiff Jeevesh Khanna, commenced an action in the Southern District of New York, against Ohr and several current and former officers and directors, alleging that they violated federal securities laws between June 24, 2014 and January 4, 2018. On August 7, 2018, the lead plaintiffs, now George Lehman and Insured Benefit Plans, Inc., filed an amended complaint, stating the class period to be April 8, 2014 through January 4, 2018. The plaintiffs did not quantify any alleged damages in their complaint but, in addition to attorneys' fees and costs, they seek to maintain the action as a class action and to recover damages on behalf of themselves and other persons who purchased or otherwise acquired Ohr common stock during the putative class period and purportedly suffered financial harm as a result. We and the individuals dispute these claims and intend to defend the matter vigorously. On September 17, 2018, Ohr filed a motion to dismiss the complaint. On September 20, 2019, the district court entered an order granting the defendants' motion to dismiss. On October 23, 2019, the plaintiffs filed a notice of appeal of that order dismissing the action and other related orders by the district court. After full briefing and oral argument, on October 9, 2020, the U.S. Court of Appeals for the Second Circuit issued a summary order affirming the district court's order granting the motion to dismiss and remanding the action to the district court to make a determination on the record related to plaintiffs' request for leave to file an amended complaint. On October 16, 2020, the district court requested the parties' positions as to how they proposed to proceed in light of the Second Circuit's decision. After letter briefing on this issue and plaintiffs' alternative request for leave to file a second amended complaint, on November 16, 2020, the district court denied plaintiffs' request to amend and dismissed with prejudice plaintiffs' claims. On December 16, 2020, plaintiffs filed a notice of appeal of that order denying plaintiffs leave to amend. The Company cannot predict at this time whether plaintiffs will choose to pursue any appeal or modification of the dismissal order within the applicable time period. This litigation could result in substantial costs and a diversion of management's resources and attention, which could harm the Company's business and the value of the Company's common stock.

On May 3, 2018, plaintiff Adele J. Barke, derivatively on behalf of Ohr, commenced an action against certain former directors of Ohr, including Michael Ferguson, Orin Hirschman, Thomas M. Riedhammer, June Almenoff and Jason S. Slakter in the Supreme Court, State of New York, alleging that the action was brought in the right and for the benefit of Ohr seeking to remedy their "breach of fiduciary duties, corporate waste and unjust enrichment that occurred between June 24, 2014 and the present." It does not quantify any alleged damages. We and the individuals dispute these claims and intend to defend the matter vigorously. Such litigation has been stayed pursuant to a stipulation by the parties, which has been so ordered by the court, pending a decision in the Southern District case on the motion to dismiss, but that status could change. This litigation could result in substantial costs and a diversion of management's resources and attention, which could harm our business and the value of our common stock.

On March 20, 2019, a putative class action lawsuit was filed in the United States District Court for District of Delaware naming as defendants Ohr and its board of directors, Legacy NeuBase, and Ohr Acquisition Corp., captioned *Wheby v. Ohr Pharmaceutical, Inc., et al*, Case No. 1:19-cv-00541-UNA (the "Wheby Action"). The plaintiffs in the Wheby Action allege that the preliminary joint proxy/prospectus statement filed by Ohr with the SEC on March 8, 2019 contained false and misleading statements and omitted material information in violation of Section 14(a) of the Exchange Act and SEC Rule 14a-9 promulgated thereunder, and further that the individual defendants are liable for those alleged misstatements and omissions under Section 20(a) of the Exchange Act. The complaint in the Wheby Action has not been served on, nor was service waived by, any of the named defendants in that action. The action seeks, among other things, to rescind the Merger or an award of damages, and an award of attorneys' and experts' fees and expenses. The defendants dispute the claims raised in the Wheby Action. Management believes that the likelihood of an adverse decision from the sole remaining action is unlikely; however, the litigation could result in substantial costs and a diversion of management's resources and attention, which could harm our business and the value of our common stock.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II.

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock is traded on the Nasdaq Capital Market under the symbol "NBSE." Before July 15, 2019, our common stock traded under the ticker symbol "OHRP". The daily market activity and closing prices of our common stock can be found at www.nasdaq.com.

On November 30, 2020, the last reported sales price for our common stock on the Nasdaq Capital Market was $7.67 per share, and we had 183 holders of record of our common stock. One of our shareholders is Cede & Co., a nominee for Depository Trust Company ("DTC"). Shares of common stock that are held by financial institutions as nominees for beneficial owners are deposited into participant accounts at DTC and are considered to be held of record by Cede & Co. as one stockholder.

Equity Compensation Plan Information

See Item 12 of Part III of this Form 10-K regarding information about securities authorized for issuance under our equity compensation plans.

Unregistered Sales of Equity Securities and Use of Proceeds

There were no unregistered sales of common stock or other equity securities during the fiscal year ended September 30, 2020.

ITEM 6. SELECTED FINANCIAL DATA

Not applicable.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Disclosures Regarding Forward-Looking Statements

This report includes "forward-looking statements" within the meaning of Section 21E of the Exchange Act. Those statements include statements regarding the intent, belief or current expectations of the Company and its subsidiaries and our management team. Any such forward-looking statements are not guarantees of future performance and involve risks and uncertainties, and actual results may differ materially from those projected in the forward-looking statements. These risks and uncertainties include but are not limited to those risks and uncertainties set forth in Item 1A of this Form 10-K. In light of the significant risks and uncertainties inherent in the forward-looking statements included in this Form 10-K, the inclusion of such statements should not be regarded as a representation by us or any other person that our objectives and plans will be achieved. Further, these forward-looking statements reflect our view only as of the date of this report. Except as required by law, we undertake no obligations to update any forward-looking statements and we disclaim any intent to update forward-looking statements after the date of this report to reflect subsequent developments. Accordingly, you should also carefully consider the factors set forth in other reports or documents that we file from time to time with the SEC.

Presentation

On July 12, 2019, Ohr completed the Merger. At the closing of the Merger, each outstanding share of Legacy NeuBase's capital stock was converted into the right to receive 1.019055643 shares of our common stock. Shares of our common stock commenced trading on the Nasdaq Capital Market under the ticker symbol "NBSE" as of market open on July 15, 2019. Our previous ticker symbol was "OHRP". As a result of the Merger, our going-forward operations will be primarily those of Legacy NeuBase. Accordingly, the results of operations reported for the fiscal year ended September 30, 2019, in this Management's Discussion and Analysis of Financial Condition and Results of Operations are not indicative of the results of operations expected for future years due to the transition of our historic business operations to primarily those of Legacy NeuBase.

Overview

NeuBase Therapeutics, Inc. (the "Company", "we", "us" and "our") is a biotechnology company accelerating the genetic revolution using a new class of synthetic medicines. Our modular peptide-nucleic acid antisense oligo ("PATrOL™") platform which outputs "anti-gene" candidate therapies is designed to combine the specificity of genetic sequence-based target recognition with a modularity that enables use of various *in vivo* delivery technologies to enable broad and also selective tissue distribution capabilities. Given that every human disease may have a genetic component, we believe that our differentiated platform technology has the potential for broad impact by increasing, decreasing or changing gene function at either the DNA or RNA levels to resolve the progression to disease, as appropriate in a particular indication. We plan to use our platform to address diseases driven by a genetic abnormality and we are initially focused on Huntington's disease ("HD") and myotonic dystrophy type 1 ("DM1").

Mutated proteins resulting from errors in deoxyribonucleic acid ("DNA") sequences cause rare genetic diseases and cancer. DNA in each cell of the body is transcribed into pre-messenger ribonucleic acid ("pre-mRNA"), which is then processed (spliced) into mRNA, which is exported into the cytoplasm of the cell and translated into a protein. This is termed the "central dogma" of biology. Therefore, when errors in a DNA sequence occur, they are often propagated into RNAs and can produce a damaging protein.

We are developing "anti-gene" therapies. Anti-genes are similar, but distinct, from antisense oligonucleotides (ASOs). ASOs are short single strands of nucleic acids (traditionally thought of as single-stranded RNA molecules) which bind to defective RNA targets in cells and inhibit their ability to form defective proteins. We believe we are a leader in the discovery and development of this new class of anti-gene drugs derived from peptide-nucleic acids ("PNAs"). The key differentiator between ASOs and anti-genes is that the scaffold is not derived from a natural sugar-phosphate nucleic acid backbone, rather is a synthetic polyamide which is charge-neutral (and thus high affinity to allow invasion of double-stranded targets), semi-rigid, and apparently non-biodegradable and immunologically inert. These features provide potential advantages over ASOs and other genetic therapies for modulating disease-causing genes including increased unique target opportunities, improved target specificity and a reduction in both sequence-dependent and independent toxicities. In addition, as these anti-genes are manufactured via standard peptide synthesis methods, they efficiently leverage the advancements in the synthetic peptide industry to enable modulating pharmacophore delivery, pharmacokinetics, sub-cellular placement and endosomal escape.

In addition to the scaffold, we also have a kit of natural nucleobases, chemically modified nucleobases which add further precision to a nucleic acid target of interest, and proprietary bi-specific nucleobases which can be added to the scaffold to allow precise target engagement. These bi-specific nucleobases, in particular, can be used in any combination to more specifically access double stranded DNA targets and RNA targets comprised of secondary structures such as hairpins (double stranded RNA targets which are folded upon themselves). This allows us to potentially access regions of the target transcript which may be unique in secondary structure to allow enhanced selectivity for the target (mutant) RNA as compared to the normal RNA. Enhanced selectivity for mutant RNAs as compared to normal RNAs is critical as normal RNAs are likely required for effective functioning of the cell. These bi-specific nucleotides can also target genomic loci and microRNAs in their double-stranded form.

A component of the modular platform is the ability to add delivery technology to the pharmacophores so as to reach a desired cell or tissue upon*in vivo* administration. There is flexibility to append various delivery technologies to the pharmacophore to allow either broad tissue distribution or narrow cell and/or tissue targeting if so desired based on targets. One such technology is a chemical moiety can be used to decorate the scaffold directly and allows the anti-genes to penetrate cell membranes and into subcellular compartments where they act as well as to distribute throughout the body when administered systemically.

In addition to the scaffold and modified nucleobases, the platform toolkit also includes linker technology which, when added to both ends of the PNAs, allow cooperative binding between individual drug molecules once they are engaged with the target RNA to form longer and more tightly bound drugs.

This toolkit of components forms the PATrOL™ platform and allows us to manufacture gene and transcript-specific anti-genes.

We are currently focused on therapeutic areas in which we believe our drugs will provide the greatest benefit with a significant market opportunity. We intend to utilize our technology to build out a pipeline of custom designed therapeutics for additional high-value disease targets. We are developing several preclinical programs using our PATrOL™ platform, including the NT0100 program, targeted at Huntington’s disease (“HD”), a repeat expansion disorder, and the NT0200 program, targeted at myotonic dystrophy, type 1 (“DM1”). Preclinical studies are being conducted to evaluate the PATrOL™ platform technology and program candidates in the areas of pharmacokinetics, pharmacodynamics and tolerability, and we reported results from certain of those studies in the first calendar quarter of 2020 and have extended upon certain of those studies in the fourth calendar quarter of 2020 which illustrated that our anti-gene technology can be administered to human patient-derived cell lines and systemically (via intravenous (IV) administration) into animals with DM1 (a genetically modified model accepted as the most representative of the human disease) and can resolve the causal genetic defect. We expect to present additional results from ongoing preclinical studies evaluating the PATrOL™ platform and pipeline indications in the first half of calendar 2021, begin IND enabling studies in one or more of our programs in calendar year 2021 and begin a clinical trial in one or more of our programs in calendar 2022. See below for additional detailed results from certain of our preclinical studies. In addition, the emerging pipeline of other assets that target primary and secondary RNA structure and genomic DNA allows a unique market advantage across a variety of rare diseases and oncology targets.

Overall, using our PATrOL™ platform, we believe we can create anti-gene therapies that have distinct advantages over other chemical entities currently in the market or in development for genetic medicine applications to modulate mutant genes and resolve a clinical trait or disorder. These advantages may differ by indication and can include, among others:

- increased unique target opportunities, improved target specificity and a reduction in both sequence-dependent and independent toxicities by virtue of a synthetic polyamide scaffold which is charge-neutral (and thus high affinity to allow invasion of double-stranded targets) and semi-rigid which imparts precision to target engagement, and are apparently immunologically inert to not aggregate via charge-based interaction in vivo;

- potentially long durability by nature of the non-biodegradable polyamide scaffold;
- our anti-genes are manufactured via standard peptide synthesis methods and thus they efficiently leverage advances in the synthetic peptide industry to enable facile addition of known moieties enabling modulating pharmacophore delivery, pharmacokinetics, sub-cellular placement and endosomal escape; and
- our anti-genes can uniquely target double stranded structures in DNA and RNA, which allow unique target opportunities that standard ASOs cannot access.

With these unique component parts and their advantages, our PATrOL™ platform-enabled anti-gene therapies can potentially address a multitude of rare genetic diseases and cancer, among other indications.

We employ a rational approach to selecting disease targets, considering many scientific, technical, business and indication-specific factors before choosing each indication. We intend to build a diverse portfolio of therapies custom-designed to treat a variety of health conditions, with an initial emphasis on rare genetic diseases and cancers. A key component of this strategy is continuing to improve the scientific understanding and optimization of our platform technology and programs, including how various components of our platform technology perform, and our drug candidates impact the biological processes of the target diseases, so that we can utilize this information to reduce risk in our future programs and indications. In addition, with our expertise in discovering and characterizing novel anti-gene drugs, we believe that our scientists can optimize the properties of our PATrOL™-enabled drug candidates for use with particular targets that we determine to be of high value.

The depth of our knowledge and expertise with PNAs, bifacial and engineered nucleotides, genetics and genomics and therapeutic development of first-in-class modalities provides potential flexibility to determine the optimal development and commercialization strategy to maximize the near and longer-term value of our drug candidates.

We have distinct partnering strategies that we plan to employ based on the specific drug candidate, therapeutic area expertise and resources potential partners may bring to a collaboration. For some drug candidates, we may choose to develop and, if approved, commercialize them ourselves or through our affiliates. For other drug candidates, we may form single or multi asset partnerships leveraging our partners’ global expertise and resources needed to support large commercial opportunities.

Globally, there are thousands of genetic diseases, most of which lack any therapeutic options. In addition, rare genetic diseases are often particularly severe, debilitating or fatal. Traditionally, therapeutic development for each rare genetic disorder has been approached with a unique strategy, which is inefficient, as there are thousands of diseases that need treatment solutions. The collective population of people with rare diseases stands to benefit profoundly from the emergence of a scalable and modular treatment development platform that allows for a more efficient discovery of drug product candidates to address these conditions cohesively.

Mutated proteins resulting from errors in deoxyribonucleic acid (“DNA”) sequences cause many rare genetic diseases and cancer. DNA in each cell of the body is transcribed into pre-RNA, which is then processed (spliced) into mRNA which is exported into the cytoplasm of the cell and translated into protein. This is termed the “central dogma” of biology. Therefore, when errors in a DNA sequence occur, they are propagated to RNAs and can become a damaging protein.

Conceptually, we have learned that ASOs can inactivate target RNAs before they can produce harmful proteins by binding them in a sequence-specific manner, which can delay disease progression or even eliminate genetic disease symptoms. ASOs designed by others to target known disease-related mutant RNA sequences have been shown to be able to degrade these transcripts and have a positive clinical impact. Similarly, applications in modifying splicing of pre-RNA in the nucleus of the cell have been developed by others to exclude damaging exons from the final mRNA product and have been approved by the Food and Drug Administration ("FDA"). We plan to extend upon these conceptual breakthroughs by utilizing our first-in-class technology which we believe has significant benefits in certain application areas to better resolve a clinical disorder with well tolerated anti-gene therapies.

We believe the breadth of the PATrOL™ platform gives us the ability to potentially address a multitude of inherited genetic diseases. The technology may also allow us to target and inactivate gain-of-function and change-of-function mutations, and address targets in recessive disease and haploinsufficiencies by altering splicing to remove damaging exons/mutations or increasing expression of wild-type alleles by various means.

Gamma-modified scaffolds, an optimized version of which we utilize, have demonstrated preclinical *in vivo* efficacy in several applications which we believe can be translated across many targets and into humans. For example, in oncology such scaffolds have reduced expression of an activated oncogene (the epidermal growth factor receptor of the EGFR gene) and have modified gene regulation by targeting microRNAs to slow tumor growth. Such scaffolds have also demonstrated *in vivo* engagement with the double-stranded genome in studies done by others to perform *in vivo* single-base genome editing.

Announcement of Positive Preclinical Data

On March 31, 2020, we announced positive preclinical data from our pharmacokinetics studies in non-human primates ("NHPs") and *in vitro* pharmacodynamics data in patient-derived cell lines. Our pharmacokinetics studies in NHPs demonstrated, among other things:

- rapid uptake of our PATrOL™-enabled compound out of the body's circulation after systemic intravenous administration, with a half-life in circulation of approximately 1.5 hours;
- penetration by our PATrOL™-enabled compound in every organ system studied, including the central nervous system and skeletal muscle; and
- retention of therapeutically relevant doses for greater than one week after single-dose injection.

Our pharmacodynamics studies in patient-derived cell lines demonstrated, among other things:

- activity in engaging target disease-causing transcripts and knocking-down resultant malfunctioning mutant *HTT* protein levels preferentially over normal *HTT* protein knock-down; and
- dose-limiting toxicities were not observed relative to a control either at or above the doses demonstrating activity in human cells *in vitro*.

In addition, PATrOL™ enabled compounds were generally well-tolerated *in vivo* after systemic administration, both after single-dose administration in NHPs and multi-dose administration in mice for over a month.

Product Pipeline

NT0100 Program - PATrOL™ Enabled Anti-Gene for Huntington's Disease

HD is a devastating rare neurodegenerative disorder. After onset, symptoms such as uncontrolled movements, cognitive impairments and emotional disturbances worsen over time. HD is caused by toxic aggregation of mutant huntingtin protein, leading to progressive neuron loss in the striatum and cortex of the brain. The wild-type huntingtin gene (*HTT*) has a region in which a three-base DNA sequence, CAG, is repeated many times. When the DNA sequence CAG is repeated 26 or fewer times in this region, the resulting protein behaves normally. While the wild-type function of HTT protein is largely uncharacterized, it is known to be essential for normal brain development. When the DNA sequence CAG is repeated 40 times or more in this region, the resulting protein becomes toxic and causes HD. Every person has two copies, or alleles, of the *HTT* gene. Only one of the alleles (the "mutant" allele) needs to bear at least 40 CAG repeats for HD to occur. HD is one of many known repeat expansion disorders, which are a set of genetic disorders caused by a mutation that leads to a repeat of nucleotides exceeding the normal threshold. Current therapies for patients with HD can only manage individual symptoms.

There is no approved therapy that has been shown to delay or halt disease progression. There are approximately 30,000 symptomatic patients in the U.S. and more than 200,000 at-risk of inheriting the disease globally.

One especially important advantage of the PATrOL™ platform that makes it promising for the treatment of repeat expansion disorders like HD is the ability of our small anti-genes to potentially target the RNA hairpin. As the number of repeats increases, the PATrOL™ anti-genes bind more tightly to each other and the mutant RNA. This allows our therapies to potentially inactivate mutant *HTT* mRNA before it can be translated into harmful protein via selective binding to the expanded CAG repeats while leaving the normal *HTT* mRNA largely unbound to drug and producing functional protein. Achieving mutant allele selectivity would be a key advantage for any RNA-based approach aiming to treat HD. In March of 2020 we illustrated the ability of our anti-gene technology to enrich for translational inhibition and resultant mutant protein in human patient-derived cell lines versus wild-type HTT alleles. We illustrated that our anti-genes can inhibit ribosomal elongation via high-affinity binding. The PATrOL™-enabled NT0100 program is currently in preclinical development for the treatment of HD.

NT0200 Program- PATrOL™ Enabled Anti-Gene for Myotonic Dystrophy Type 1

Our pipeline also contains a second potentially transformative medicine, which we believe has significant potential for DM1, a severe and rare trinucleotide repeat disease. DM1 is a multisystem disorder that primarily affects skeletal, cardiac and smooth muscle, as well as the brain. DM1 is caused by expansion of a CUG trinucleotide repeat in the 3' untranslated region (UTR), a noncoding region of the myotonic dystrophy protein kinase gene (*DMPK*) transcript, which captures and sequesters protein that have critical functions in the nucleus related to appropriate splicing of hundreds of transcripts. These sequestered proteins cannot then fulfill their normal functions. In addition, it has been documented that sequestration of the mutant transcripts in the nucleus results in their inability to be translated and results in haploinsufficiency, a situation where 50% of the protein in not enough to maintain normal function. Mice with both copies of their *DMPK* gene knocked out manifest a cardiac conduction defect (Berul CI, Maguire CT, Aronovitz MJ, Greenwood J, Miller C, Gehrmann J, Housman D, Mendelsohn ME, Reddy S. DMPK dosage alterations result in atrioventricular conduction abnormalities in a mouse myotonic dystrophy model. J Clin Invest. 1999 Feb;103(4):R1-7. doi: 10.1172/JCI5346. PMID: 10021468; PMCID: PMC408103.) and a CNS phenotype characterized by abnormal long-term potentiation (Schulz PE, McIntosh AD, Kasten MR, Wieringa B, Epstein HF. A role for myotonic dystrophy protein kinase in synaptic plasticity. J Neurophysiol. 2003 Mar;89(3):1177-86. doi: 10.1152/jn.00504.2002. Epub 2002 Nov 13. PMID: 12612014.) hypothesized to be due to inappropriate cytoskeletal remodeling.

We propose that our mechanism of action is via direct engagement of our anti-gene with the expanded CUG repeat hairpin structure in the 3' UTR of mutant transcript, invasion and opening of the hairpin structure, and release of the sequestered CUG-repeat binding proteins. This release of sequestered proteins which are normally involved in developmentally appropriate pre-mRNA splicing in the nucleus resolves the generalized splice defect and thus the major causal event. Our DM1 anti-gene is designed to not specifically degrade the mutant transcript, rather to release the RNA-protein aggregates through steric displacement, and as a result may improve endophenotypes of the clinical condition, such as in the heart and brain (contingent on delivering effective concentrations of anti-gene to these tissues).

DM1 is characterized clinically by myotonia (inability to relax a muscle after contraction), muscle weakness, muscle wasting and a CNS endophenotype that is characterized by and is confirmed by molecular genetic testing of *DMPK* trinucleotiode repeat expansion. CTG repeat length (in the genome) exceeding 34 repeats is abnormal and often patients have hundreds or thousands of repeat units. Molecular genetic testing detects pathogenic variants in nearly 100% of affected individuals. It is estimated that the global prevalence of DM1 is 1 in 20,000 individuals. The clinical candidates in development target the DM1 expanded allele with PATrOL™-enabled drug candidates to disrupt and/or open the mutant hairpin and allow release of sequestered splice proteins, and resolution of the possible contributory haploinsufficiency by allowing the mutant transcript to translocate to the cytoplasm and be expressed together with the wild-type transcript to form a complete complement of DMPK protein in critical tissues. Our recent data illustrates that we are able to systemically deliver our anti-genes intravenously in DM1 genetic mouse models, engage the target in the skeletal muscles of the animals, and rescue the causal splice defect.

Additional Indications

In addition, we are in the process of building an early stage pipeline of other therapies that focus on the unique advantages of our technology across a variety of diseases with an underlying genetic driver.

We believe that the preclinical data we have generated on our PATrOL™ platform and pipeline programs support the advancement of the Company's programs through additional preclinical activities and subsequent IND-enabling studies.

Recent Developments

On December 16, 2020, we announced additional positive preclinical data on our platform and DM1 program. In vitro data highlights in DM1 patient-derived fibroblasts include activity of an anti-gene (Compound A) that targets the CUG repeat in DM1:

- Compound A traffics to the nucleus, engages and normalizes *DMPK* mRNA.
- Compound A rescues mis-splicing of two key DM1 dysregulated transcripts (*MBNL1* and *MBNL2)* within two days after initial treatment. Notably, induction of rescue continues to improve through day 9, the latest time point analyzed.
- Compound A significantly induces broad correction of global exon inclusion levels of mis-spliced transcripts.
  - Statistically significant improvement in global splicing as measured by the human differential splice inclusion (hDSI) statistic.
  - More than 175 dysregulated human transcripts achieved statistically significant improvement in splicing, many with completely normalized exon usage.
- DMPK protein levels remain unchanged 5 days after a single Compound A dose, supporting the hypothesized mechanism of action maintaining DMPK.

In vivo data highlights in the HSA^{LR} transgenic mouse model of DM1 that expresses high levels of mutant CUG-repeat-containing mRNA (*HSA*) in skeletal muscle:

- A single intravenous (IV) injection of 29 mg/kg of Compound A traffics to the nucleus and engages *HSA* mRNA within 24 hours in tibialis anterior (TA) skeletal muscle.
- A single intravenous (IV) injection of Compound A significantly induces broad correction of global exon inclusion levels of mis-spliced transcripts in HSA^{LR} TA skeletal muscle at day 13.
- Statistically significant improvement in global splicing as measured by the murine differential splice inclusion (mDSI) statistic.
  - More than 50 unique dysregulated murine transcripts achieved statistically significant improvement in splicing post-treatment, with many achieving complete normalization of appropriate exon usage.
- Compound A was well tolerated after single dose administration at the dose demonstrating activity *in vivo.*

We believe the intersection of the NHP pharmacokinetic data and the *in vitro* and *in vivo* pharmacodynamic data provides a roadmap to create a pipeline of therapeutic candidates which can reach target tissues of interest after systemic administration and achieve the desired activity at that dose. We believe that the data from these studies provides a roadmap for the future expansion of the Company's therapeutic pipeline into other indications.

Results of Operations

Results of operations for the fiscal year ended September 30, 2020 reflect the following changes from the year ended September 30, 2019.

	Year Ended September 30, 2020	Year Ended September 30, 2019	Change
OPERATING EXPENSES			
General and administrative expenses	$ 10,123,298	$ 9,095,674	$ 1,027,624
Research and development expenses	6,946,008	3,447,201	3,498,807
Research and development expense- license acquired	-	12,967,415	(12,967,415)
TOTAL OPERATING EXPENSES	17,069,306	25,510,290	(8,440,984)
LOSS FROM OPERATIONS	(17,069,306)	(25,510,290)	8,440,984

OTHER INCOME (EXPENSE)			
Interest expense	(7,686)	(128,951)	121,265
Change in fair value of warrant liabilities	(453,808)	(492,889)	39,081
Loss on disposal of fixed asset	(3,230)	-	(3,230)
Equity in losses on equity method investment	(262,861)	-	(262,861)
Other income	412,371	-	412,371
Total other expenses, net	(315,214)	(621,840)	306,626
NET LOSS	$ (17,384,520)	$ (26,132,130)	$ 8,747,610

Until we are able to generate revenues, our management expects to continue to incur net losses.

General and Administrative Expense

General and administrative expense consists primarily of legal and professional fees, wages and stock-based compensation. General and administrative expenses increased by $1.0 million for the fiscal year ended September 30, 2020, as compared to the fiscal year ended September 30, 2019, primarily due to an increase in employee head count and additional legal and professional services.

Research and Development Expense

Research and development expense consist primarily of professional fees, manufacturing expenses, wages and stock-based compensation. Research and development expenses increased by $3.5 million for the fiscal year ended September 30, 2020, as compared to the fiscal year ended September 30, 2019, primarily due to an increase in employee headcount and the ramp up of research and development activities.

Research and Development Expense- Licenses Acquired

Research and development expense- licenses acquired consists of licenses acquired from CMU and in the Merger with Ohr. Research and development expense- licenses acquired decreased by $13.0 million for the fiscal year ended September 30, 2020, as compared to the fiscal year ended September 30, 2019, primarily due to our acquisition of license rights in 2019.

Interest Expense

Interest expense consists primarily of interest on convertible notes and notes payable. Interest expense decreased by $0.1 million for the fiscal year ended September 30, 2020, as compared to the fiscal year ended September 30, 2019, primarily due to the decrease in convertible notes. No convertible notes were outstanding during the fiscal year ended September 30, 2020.

Change in Fair Value of Warrant Liabilities

Change in fair value of warrant liabilities reflects the changes in warrant liabilities primarily due to changes in our stock price. Change in fair value of warrant liabilities decreased by $0.04 million for the fiscal year ended September 30, 2020, as compared to the fiscal year ended September 30, 2019, primarily due to changes in our stock price which is reflected in the warrant valuation.

Equity in losses on equity method investment

The Company accounts for its investment in DepYmed common shares using the equity method of accounting and records its proportionate share of DepYmed's net income and losses. Equity in losses for the years ended September 30, 2020 and 2019 was approximately $0.3 million and $0, respectively.

Other income

Other income reflects the Company's license, and completed transfer, of certain clinical trial data during the year ended September 30, 2020. No such license and data transfer occurred during the comparative prior year period.

Liquidity, Capital Resources and Financial Condition

We have no revenues from product sales and have incurred operating losses since inception. The Company has historically funded its operations through the sale of common stock and the issuance of convertible notes and warrants. We expect to continue to incur significant operating losses for the foreseeable future and may never become profitable. As a result, we will likely need to raise additional capital through one or more of the following: the issuance of additional debt or equity or the completion of a licensing transaction for one or more of the Company's pipeline assets. Management believes that it has sufficient working capital on hand to fund operations through at least the next twelve months from the date these consolidated financial statements were issued.

Net working capital increased from the fiscal year ended September 30, 2019 to the fiscal year ended September 30, 2020 by $21.1 million (to $29.7 million from $8.5 million) primarily due to our April 2020 underwritten public offering of 6,037,500 shares of common stock, at a price to the public of $6.00 per share, offset, in part, by costs for the development of our PATrOL™ platform technology and lead programs. We received net proceeds from the offering of approximately $33.3 million, after deducting the underwriting discounts and commissions and other estimated offering expenses payable by the Company. Our quarterly cash burn has increased significantly compared to prior periods due to increased research and development activities. We anticipate that our cash needs will likely continue to increase relative to prior periods as we increase our research and development activities, and believe that our current cash balance will provide sufficient capital to continue operations into the first calendar quarter of 2022.

At present, we have no bank line of credit or other fixed source of capital reserves. Should we need additional capital in the future, we will be primarily reliant upon a private or public placement of our equity or debt securities, or a strategic transaction, for which there can be no warranty or assurance that we may be successful in such efforts. If we are unable to maintain sufficient financial resources, our business, financial condition and results of operations will be materially and adversely affected. This could affect future development and business activities and potential future clinical studies and/or other future ventures. Failure to obtain additional equity or debt financing will have a material, adverse impact on the Company's business operations. There can be no assurance that we will be able to obtain the needed financing to achieve our goals on acceptable terms or at all.

Contractual Obligations and Commitments

Leases

During the fiscal year ended September 30, 2019, Legacy NeuBase utilized the services of LifeX Labs LLC. These services included accounting consultation and office space rental. This agreement was terminated on January 8, 2019. Dietrich Stephan, our Chief Executive Officer ("CEO"), was on the board and acting as CEO of LifeX Labs LLC until December 28, 2018, when he resigned all positions within LifeX. During the fiscal year ended September 30, 2019, and 2020, the Company incurred expenses of approximately $0.01 million and $0, respectively.

On March 12, 2019, we entered into a sublease agreement with StartUptown for the lease of our office in downtown Pittsburgh, PA for a one year term with an option to renew for up to six months. We paid an initial security deposit of $2,532 upon signing the sublease agreement, and based on the rental rate, expected to incur a monthly rental rate of $2,532 at that time over the life of the sublease if not extended. During the years ended September 30, 2020 and 2019, we entered into multiple amendments to the sublease with StartUptown to increase our office space and extend the term of sublease, with increasing rental rates. All other material terms of the original sublease remained the same in the sublease amendments. As of September 30, 2020, the sublease agreement provides for the sublease of 2,350 square feet of office and laboratory space until December 31, 2020 with a monthly rent of $7,812 per month.

On October 2, 2020, we entered into a lease agreement for office and laboratory space in Pittsburgh, Pennsylvania. The leased premises will serve as our headquarters upon the commencement of the lease. The initial term of the lease commences upon the landlord's delivery of the leased premises in tenant improvement readiness condition. The initial term of the Lease will extend approximately ten years from delivery of the leased premises to us, unless earlier terminated in accordance with the lease. We will have the right to extend the term of the lease for additional five-year terms. Under the lease, we will lease approximately 14,189 square feet of the property. We will pay an escalating base rent over the life of the lease of approximately $63,000 to $70,000 per month, and we will pay our pro rata portion of property expenses and operating expenses for the property.

Cash Flow Summary

The following table summarizes selected items in our consolidated statements of cash flows:

	Year Ended September 30,	
	2020	**2019**
Net cash used in operating activities	$ (10,710,071)	$ (2,845,488)
Net cash used in investing activities	(716,820)	(685,225)
Net cash provided by financing activities	33,105,208	13,595,079
Net increase in cash and cash equivalents	$ 21,678,317	$ 10,064,366

Operating Activities

Net cash used in operating activities was approximately $10.7 million for the fiscal year ended September 30, 2020 as compared to $2.8 million for the fiscal year ended September 30, 2019. Net cash used in operating activities in 2020 was primarily as a result of our net loss, offset by stock based compensation and changes in operating assets and liabilities. Net cash used in operating activities in 2019 was primarily as a result of our net loss, offset by stock based compensation, research and development expense for licenses acquired and changes in operating assets and liabilities.

Investing Activities

Net cash used in investing activities was approximately $0.7 million for the fiscal year ended September 30, 2020, as compared to $0.7 million for the fiscal year ended September 30, 2019. Net cash used in investing activities in the fiscal year ended September 30, 2020 was the result of purchases of laboratory equipment. Net cash used in investing activities in the fiscal year ended September 30, 2019 was primarily the result of purchases of laboratory equipment and cash consideration and expenses paid in connection with the acquisition of the CMU License. These expenditures were partially offset by cash acquired in connection with the Merger with Ohr.

Financing Activities

Net cash provided by financing activities was approximately $33.1 million for the fiscal year ended September 30, 2020, as compared to $13.6 million for the fiscal year ended September 30, 2019. Net cash provided by financing activities for the fiscal year ended September 30, 2020 reflects the proceeds from the issuance of common stock of $33.3 million, net of issuance costs, and the principal payments of financed insurance. Net cash provided by financing activities for the fiscal year ended September 30, 2019 primarily reflects the proceeds from the issuance of common stock in our pre-acquisition and private placement financings and issuance of convertible notes.

Off-Balance Sheet Arrangements

As of September 30, 2020, we did not have any off-balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Recent Accounting Standards

See Note 2 to our consolidated financial statements for a discussion of recent accounting standards and their effect, if any, on us.

Critical Accounting Estimates and Policies

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with United States generally accepted accounting principles ("GAAP"). The preparation of these financial statements requires us to make estimates, judgments and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities as of the date of the balance sheet and the reported amounts of expenses during the reporting period. In accordance with GAAP, we evaluate our estimates and judgments on an ongoing basis. The most significant estimates relate to the valuation of share-based compensation, the valuation of licenses, the fair value of warrant liabilities and the valuation allowance of deferred tax assets resulting from net operating losses. We base our estimates and assumptions on current facts, our limited historical experience from operations and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We define our critical accounting policies as those accounting principles that require it to make subjective estimates and judgments about matters that are uncertain and are likely to have a material impact on our financial condition and results of operations, as well as the specific manner in which we apply those principles. While our significant accounting policies are more fully described in Note 2 to our financial statements appearing elsewhere in this Form 10-K, we believe the following are the critical accounting policies used in the preparation of our financial statements that require significant estimates and judgments:

Fair Value of Financial Instruments

In accordance with Accounting Standards Codification ("ASC") 820, the carrying value of cash and cash equivalents, accounts payable and notes payable approximates fair value due to the short-term maturity of these instruments. ASC 820 clarifies the definition of fair value, prescribes methods for measuring fair value, and establishes a fair value hierarchy to classify the inputs used in measuring fair value as follows:

- Level 1 - Quoted prices in active markets for identical assets or liabilities on the reporting date.
- Level 2 - Pricing inputs are based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active and model-based valuation techniques for which all significant assumptions are observable in the market or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 - Pricing inputs are generally unobservable and include situations where there is little, if any, market activity for the investment. The inputs into the determination of fair value require management's judgment or estimation of assumptions that market participants would use in pricing the assets or liabilities. The fair values are therefore determined using factors that involve considerable judgment and interpretations, including but not limited to private and public comparable, third-party appraisals, discounted cash flow models and fund manager estimates.

As of September 30, 2020, the fair value of outstanding warrant liabilities measured at fair value on a recurring basis was $1.0 million. The warrant liabilities are valued using Level 3 valuation inputs. At September 30, 2019, the fair value of outstanding warrant liabilities measured at fair value on a recurring basis was $0.5 million.

As of September 30, 2020 and 2019, the recorded values of cash and cash equivalents, accounts payable and the insurance note payable, approximate the fair values due to the short-term nature of the instruments.

Research and Development

Research and development expenses are expensed in the statement of operations as incurred in accordance with the Financial Accounting Standards Board ("FASB") ASC 730, *Research and Development*. Research and development expenses consist of salaries and related benefits for personnel in research and development functions, including stock-based compensation and benefits and fees paid to consultants and contract research organizations for preclinical development work on our PATrOL™ platform and programs, as well as other costs. We incurred research and development expenses of $3.4 million for the fiscal year ended September 30, 2019. During the fiscal year ended September 30, 2020, we incurred $6.9 million in research and development expenses.

Share-Based Compensation

We follow the provisions of ASC 718 – Stock Compensation which requires all share-based payments to employees, including grants of employee stock options, be recognized in the income statement based on their fair values. We have early adopted Accounting Standard Update ("ASU") 2018-07, which expands the scope of ASC 718 to include share based payments granted to nonemployees and supersedes the guidance in ASC 505-50. We estimate the fair value of stock option grants using the Black-Scholes option pricing model, and the assumptions used in calculating the fair value of stock-based awards represent management's best estimates and involve inherent uncertainties and the application of management's judgment.

Stock-based compensation expense is recognized in our financial statements on a straight-line basis for each separately vesting portion of the award. The stock-based compensation awards generally vest over a period of up to four years. All stock-based compensation costs are recorded in general and administrative or research and development costs in the consolidated statements of operations based upon the underlying individual's role at the Company.

Income Taxes

Income taxes are recorded in accordance with Accounting Standards Codification Topic 740, *Income Taxes* ("ASC 740"), which provides for deferred taxes using an asset and liability approach. We recognize deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Valuation allowances are provided, if based upon the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

We account for uncertain tax positions in accordance with the provisions of ASC 740. When uncertain tax positions exist, we recognize the tax benefit of tax positions to the extent that the benefit would more likely than not be realized assuming examination by the taxing authority. The determination as to whether the tax benefit will more likely than not be realized is based upon the technical merits of the tax position as well as consideration of the available facts and circumstances. We recognize any interest and penalties accrued related to unrecognized tax benefits as income tax expense.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Not applicable.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

INDEX TO FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of NeuBase Therapeutics, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of NeuBase Therapeutics, Inc. and subsidiaries (the "Company") as of September 30, 2020 and 2019, the related consolidated statements of operations, stockholders' equity and cash flows for each of the two years in the period ended September 30, 2020, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of September 30, 2020 and 2019, and the results of its operations and its cash flows for each of the two years in the period ended September 30, 2020, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Marcum LLP

Marcum LLP

We have served as the Company's auditor since 2020.

New York, NY
December 23, 2020

NeuBase Therapeutics, Inc. and Subsidiaries
Consolidated Balance Sheets

	September 30, 2020	September 30, 2019
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 31,992,283	$ 10,313,966
Prepaid insurance	521,617	449,583
Other prepaid expenses and current assets	294,640	265,686
Total Current Assets	32,808,540	11,029,235
EQUIPMENT, net	1,166,934	430,995
OTHER ASSETS		
Intangible assets, net	-	145,833
Investment	323,557	586,418
Long-term prepaid insurance	145,250	338,916
Total Other Assets	468,807	1,071,167
TOTAL ASSETS	$ 34,444,281	$ 12,531,397
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable	$ 1,505,042	$ 1,477,152
Accrued expenses and other current liabilities	555,883	405,599
Warrant liabilities	950,151	496,343

Insurance note payable	138,557	122,919
Total Liabilities	3,149,633	2,502,013
COMMITMENTS AND CONTINGENCIES (Note 16)		
STOCKHOLDERS' EQUITY		
Preferred stock, $0.0001 par value; 10,000,000 shares authorized; no shares issued and outstanding as of September 30, 2020 and 2019	-	-
Common stock, $0.0001 par value; 250,000,000 shares authorized; 23,154,084 and 17,077,873 shares issued and outstanding as of September 30, 2020 and 2019, respectively	2,315	1,708
Additional paid-in capital	74,850,935	36,201,758
Accumulated deficit	(43,558,602)	(26,174,082)
Total stockholders' equity	31,294,648	10,029,384
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 34,444,281	$ 12,531,397

The accompanying notes are an integral part of these consolidated financial statements.

NeuBase Therapeutics, Inc. and Subsidiaries
Consolidated Statements of Operations

	Year Ended September 30, 2020	2019
OPERATING EXPENSES		
General and administrative	$ 10,123,298	$ 9,095,674
Research and development	6,946,008	3,447,201
Research and development expense- license acquired	-	12,967,415
TOTAL OPERATING EXPENSES	17,069,306	25,510,290
LOSS FROM OPERATIONS	(17,069,306)	(25,510,290)
OTHER INCOME (EXPENSE)		
Interest expense	(7,686)	(128,951)
Change in fair value of warrant liabilities	(453,808)	(492,889)
Loss on disposal of fixed asset	(3,230)	-
Equity in losses on equity method investment	(262,861)	-
Other income	412,371	-
Total other income (expenses), net	(315,214)	(621,840)
NET LOSS	$ (17,384,520)	$ (26,132,130)
BASIC AND DILUTED LOSS PER SHARE	$ (0.89)	$ (3.16)
WEIGHTED AVERAGE SHARES OUTSTANDING:		
BASIC AND DILUTED	19,620,291	8,271,707

The accompanying notes are an integral part of these consolidated financial statements.

NeuBase Therapeutics, Inc. and Subsidiaries
Consolidated Statements of Changes in Stockholders' Equity

	Treasury Stock		Common Stock		Additional Paid-In	Accumulated	Total Stockholders'
	Shares	Amount	Shares	Amount	Capital	Deficit	Equity
Balance as of September 30, 2018	**-**	**$ -**	**5,727,090**	**$ 573**	**$ (517)**	**$ (41,952)**	**$ (41,896)**
Stock-based compensation expense	-	-	-	-	8,958,966	-	8,958,966
Repurchase of common stock	(1,401,202)	(140)	-	-	126	-	(14)
Retirement of common stock	1,401,202	140	(1,401,202)	(140)	-	-	-
Common stock for research and development expense- license acquired- CMU	-	-	835,625	84	844,516	-	844,600
Issuance of restricted stock for services	-	-	1,532,984	153	1,321	-	1,474
Issuance of common stock for conversion of notes payable and accrued interest	-	-	609,874	61	966,155	-	966,216
Issuance of common stock for the cashless exercise of warrants	-	-	103,787	10	429,667		429,677
Cash received for prefunded warrants	-	-	-	-	10	-	10
Issuance of common stock in pre-acquisition private placement, net of issuance costs	-	-	5,302,005	530	8,267,627	-	8,268,157
Issuance of common stock and options for acquisition of Ohr	-	-	2,829,248	283	11,776,644	-	11,776,927

Issuance of common stock in a private placement financing, net of issuance costs	-	-	1,538,462	154	4,957,243	-	4,957,397
Net loss	-	-	-	-	-	(26,132,130)	(26,132,130)
Balance as of September 30, 2019	**-**	**-**	**17,077,873**	**1,708**	**36,201,758**	**(26,174,082)**	**10,029,384**
Stock-based compensation expense	-	-	-	-	5,194,784	-	5,194,784
Issuance of common stock, net of issuance costs	-	-	6,037,500	604	33,283,366	-	33,283,970
Issuance of restricted stock for services	-	-	6,980	-	-	-	-
Exercise of stock options	-	-	31,731	3	171,027		171,030
Net loss	-	-	-	-	-	(17,384,520)	(17,384,520)
Balance as of September 30, 2020	**-**	**$ -**	**23,154,084**	**$ 2,315**	**$ 74,850,935**	**$ (43,558,602)**	**$ 31,294,648**

The accompanying notes are an integral part of these consolidated financial statements.

NeuBase Therapeutics, Inc. and Subsidiaries
Consolidated Statement of Cash Flows

	Year Ended September 30,	
	2020	**2019**
Cash flows from operating activities:		
Net loss	$ (17,384,520)	$ (26,132,130)
Adjustments to reconcile net loss to net cash used in operating activities		
Stock-based compensation	5,194,784	8,958,966
Research and development expense - license acquired CMU	-	1,046,965
Research and development expense - license acquired Ohr	-	11,920,450
Change in fair value of warrant liabilities	453,808	492,889
Depreciation and amortization	280,463	128,372
Loss on disposal of fixed asset	3,230	-
Equity in losses on equity method investment	262,861	-
Non-cash amortization on convertible notes	-	94,444
Non-cash interest expense on convertible notes	-	21,772
Changes in operating assets and liabilities		
Other prepaid expenses and current assets	264,442	(386,499)
Long-term prepaid insurance	193,666	(338,916)
Accounts payable	(129,088)	962,434
Accrued expenses and other current liabilities	150,283	385,765
Net cash used in operating activities	(10,710,071)	(2,845,488)
Cash flows from investing activities		
Purchase of laboratory and office equipment	(716,820)	(455,200)
Cash acquired in connection with Acquisition of Ohr	-	752,419
Payment of transaction costs for Acquisition of Ohr	-	(884,981)
Payment of transaction costs for licenses acquired- CMU	-	(43,463)
Cash paid for license acquired	-	(54,000)
Net cash used in investing activities	(716,820)	(685,225)
Cash flows from financing activities		
Principal payment of financed insurance	(349,792)	(90,081)
Proceeds from issuance of stock, net of issuance costs	33,283,970	-
Proceeds from exercise of stock options	171,030	-
Proceeds from issuance of common stock in pre-acquisition financing, net of issuance costs	-	8,268,157
Proceeds from issuance of common stock in private placement financing, net of issuance costs	-	4,957,397
Proceeds from issuance of convertible notes	-	600,000
Payment for warrant redemption	-	(141,864)
Proceeds from issuance of common shares for services	-	1,474
Proceeds from prefunded warrant	-	10
Repurchase of common stock	-	(14)
Net cash provided by financing activities	33,105,208	13,595,079
Net increase in cash and cash equivalents	21,678,317	10,064,366
Cash and cash equivalents, beginning of period	10,313,966	249,600
Cash and cash equivalents, end of period	**$ 31,992,283**	**$ 10,313,966**
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ 3,244	$ 3,177
Cash paid for income taxes	$ -	$ -
Non-cash investing and financing activities:		
Issuance of common stock for research and development expense- licenses acquired- CMU	$ -	$ 844,600
Issuance of common stock and options for acquisition of Ohr	$ -	$ 11,776,927
Fair value of warrant liability issued for research and development expense- licenses acquired	$ -	$ 104,902
Issuance of common stock for conversion of debt	$ -	$ 944,444
Issuance of common stock for conversion of accrued interest	$ -	$ 21,772
Issuance of common stock for the cashless exercise of warrant	$ -	$ 429,677
Insurance financed through note payable	$ 365,430	$ 213,000
Capital expenditures in accounts payable	$ 156,978	$ -

The accompanying notes are an integral part of these consolidated financial statements.

NeuBase Therapeutics, Inc. and Subsidiaries
Notes to Consolidated Financial Statements

1. Organization and Description of Business

NeuBase Therapeutics, Inc. and subsidiaries (the "Company" or "NeuBase") is developing a modular peptide-nucleic acid ("PNA") antisense oligo ("PATrOL™") platform to address genetic diseases caused by mutant proteins, with a single, cohesive approach. The PATrOL™-enabled anti-gene therapies are designed to improve upon current genetic medicine strategies by combining the advantages of synthetic approaches with the precision of antisense technologies. NeuBase plans to use its platform to address diseases which have a genetic source, with an initial focus on Huntington's Disease ("HD") and Myotonic Dystrophy Type 1 ("DM1"), as well as other genetic disorders and cancer.

NeuBase is a pre-clinical-stage biopharmaceutical company and continues to develop its clinical and regulatory strategy with its internal research and development team with a view toward prioritizing market introduction as quickly as possible. NeuBase's lead programs are NT0100 and NT0200.

The NT0100 program is a PATrOL™-enabled therapeutic program being developed to target the mutant expansion in the HD messenger ribonucleic acid ("RNA"). The NT0100 includes several proprietary PNAs which have the potential to be highly selective for the mutant transcript vs. the wild-type transcribed allele and the expectation to be applicable for nearly all HD patients as it directly targets the expansion itself, and has the potential to be delivered systemically. PATrOL™-enabled drugs also have the unique ability to open RNA secondary structures and bind to either the primary nucleotide sequences or the secondary and/or tertiary structures. NeuBase believes the NT0100 program addresses an unmet need for a disease which currently has no effective therapeutics that target the core etiology of the condition. NeuBase believes there is a large opportunity in the U.S. and European markets for drugs in this space.

The NT0200 program is a PATrOL™-enabled therapeutic program being developed to target the mutant expansion in the DM1 disease mRNA. The NT0200 program includes several proprietary PNAs which have the potential to be highly selective for the mutant transcript versus the wild-type transcribed allele and the expectation to be effective for nearly all DM1 patients as it directly targets the expansion itself. NeuBase believes the NT0200 program addresses an unmet need for a disease which currently has no effective therapeutics that target the core etiology of the condition. NeuBase believes there is also a large opportunity in the U.S. and European markets for drugs in this space.

Acquisition of Ohr Pharmaceutical, Inc. and Reverse Stock Split

On July 12, 2019, the Company (formerly known as Ohr Pharmaceutical, Inc. ("Ohr")) completed a reverse acquisition transaction in accordance with the terms of the Agreement and Plan of Merger and Reorganization, dated as of January 2, 2019, by and among the Company, Ohr Acquisition Corp. ("Merger Sub"), and NeuBase Therapeutics, Inc. ("Legacy NeuBase"), as amended by the First Amendment thereto made and entered into as of June 27, 2019 (as amended, the "Acquisition Agreement"), pursuant to which Merger Sub merged with and into Legacy NeuBase, with Legacy NeuBase ("renamed as NeuBase Corporation") surviving as a wholly owned subsidiary of the Company (the "Ohr Acquisition"). On July 12, 2019, immediately after completion of the Ohr Acquisition, the Company changed its name to "NeuBase Therapeutics, Inc."

Under the terms of the Acquisition Agreement, the Company issued shares of common stock to Legacy NeuBase's stockholders at an exchange rate of 1.019055643 shares of common stock for each share of Legacy NeuBase's common stock outstanding immediately prior to the Ohr Acquisition (the "Exchange Ratio"). The Company also assumed all of the stock options outstanding and unexercised under the NeuBase Therapeutics, Inc. 2018 Equity Incentive Plan with such stock options henceforth representing the right to purchase a number of shares of common stock equal to the Exchange Ratio multiplied by the number of shares of Legacy NeuBase's common stock previously represented by such options (and rounding the resulting number down to the nearest whole share) at an exercise price equal to the previous per share exercise price of such options divided by the Exchange Ratio (and rounding the resulting number up to the nearest whole cent).

Immediately after the Ohr Acquisition, there were 15,524,219 shares of common stock outstanding. Immediately after the Ohr Acquisition, the former stockholders, optionholders, warrantholders and noteholders of Legacy NeuBase owned, or held rights to acquire, approximately 85% of the fully-diluted common stock of the combined company, with the Company's stockholders, optionholders and warrantholders immediately prior to the Ohr Acquisition owning, or holding rights to acquire, approximately 15% of the fully-diluted common stock of the combined company.

The Ohr Acquisition was accounted for as a "reverse asset acquisition", whereby Legacy NeuBase was determined to be the accounting acquirer based upon the terms of the Ohr Acquisition and other factors including: (i) Legacy NeuBase stockholders and other persons holding securities convertible, exercisable or exchangeable directly or indirectly for Legacy NeuBase common stock owned approximately 85% of the Company immediately following the effective time of the Ohr Acquisition, (ii) Legacy NeuBase holds all (five) board seats of the combined company and (iii) Legacy NeuBase' management holds key positions in the management of the combined company. The historical financial statements, outstanding shares and all other historical share information have been adjusted by multiplying the respective share amount by the Exchange Ratio as if the Exchange Ratio had been in effect for all periods presented.

Prior to the Ohr Acquisition, on January 18, 2019, following a special meeting of the Company's stockholders, the board of directors of the Company approved a one-for-twenty reverse stock split of the Company's issued and outstanding shares of common stock (the "Reverse Stock Split"). On January 23, 2019, the Company filed with the Secretary of State of the State of Delaware a Certificate of Amendment to its Certificate of Incorporation to effect the Reverse Stock Split. The Company's common stock began trading on a split-adjusted basis when the market opened on February 4, 2019.

2. Significant Accounting Policies

Basis of Presentation

The Company's consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP"). The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All intercompany accounts and transactions have been eliminated during the consolidation process. The Company manages its operations as a single segment for the purposes of assessing performance and making operating decisions.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of expenses during the reporting period. The most significant estimates in the Company's consolidated financial statements relate to the valuation of share-based compensation, the valuation of licenses, the fair value of warrant liabilities and the valuation allowance of deferred tax assets resulting from net operating losses. These estimates and assumptions are based on current facts, historical experience and various other factors believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities and the recording of expenses that are not readily apparent from other sources. The Company assesses and updates estimates each period to reflect current information, such as the economic considerations related to the impact that the novel coronavirus disease (COVID-19) could have on our significant accounting estimates (See Part I, Item 1A- Risk Factors "*Our operations may be adversely affected by the coronavirus outbreak, and we face risks that could impact our business*" for further discussion of the effect of the COVID-19 pandemic on our operations). Actual results may differ materially and adversely from these estimates. To the extent there are material differences between the estimates and actual results, the Company's future results of operations will be affected.

Revision to Prior Year Financial Statements

During the course of preparing the annual report on Form 10-K for the years ended September 30, 2020, and 2019, the Company identified an error in one of the Black-Scholes option pricing model assumptions, utilized in calculating the fair value of a stock option award granted during the year ended September 30, 2019, which resulted in an overstatement of share-based compensation expense for the year ended September 30, 2019.

The Company concluded that the error was not material to any prior annual period and the error had no impact to any prior interim period. Nevertheless, the Company has revised its historical financial statements to properly reflect the share-based compensation expense for the corrected fair value of options granted in the prior period.

The effect of the revisions to the financial statements is as follows:

Consolidated Balance Sheet

	September 30, 2019		
	As Previously Reported	Adjustments	As Adjusted
Stockholders' equity			
Additional paid-in capital	$ 37,027,875	$ (826,117)	$ 36,201,758
Accumulated deficit	(27,000,199)	826,117	(26,174,082)
Total stockholders' equity	10,029,384	-	10,029,384
Total liabilities and stockholders' equity	$ 12,531,397	$ -	$ 12,531,397

Consolidated Statement of Operations

	Year Ended September 30, 2019		
	As Previously Reported	Adjustments	As Adjusted
Research and development expenses	$ 4,273,318	$ (826,117)	$ 3,447,201
Total operating expenses	26,336,407	(826,117)	25,510,290
Loss from operations	(26,336,407)	826,117	(25,510,290)
Net loss	$ (26,958,247)	$ 826,117	$ (26,132,130)
Basic and diluted loss per common share	$ (3.26)		$ (3.16)

Consolidated Statement of Cash Flows

	Year Ended September 30, 2019		
	As Previously Reported	Adjustments	As Adjusted
Cash flows from operating activities:			
Net loss	$ (26,958,247)	$ 826,117	$ (26,132,130)
Stock-based compensation	9,785,083	(826,117)	8,958,966
Net cash used in operating activities	(2,845,488)	-	(2,845,488)

Concentration of Credit Risk

Financial instruments that potentially subject the Company to credit risk consist principally of cash and cash equivalents. Cash and cash equivalents are maintained in accounts with financial institutions, which, at times may exceed the Federal depository insurance coverage of $250,000. The Company has not experienced losses on these accounts and management believes, based upon the quality of the financial institutions, that the credit risk with regard to these deposits is not significant.

Fair Value Measurements

Fair value measurements are based on the premise that fair value is an exit price representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the following three-tier fair value hierarchy has been used in determining the inputs used in measuring fair value:

Level 1- Quoted prices in active markets for identical assets or liabilities on the reporting date.

Level 2- Pricing inputs are based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active and model-based valuation techniques for which all significant assumptions are observable in the market or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3- Pricing inputs are generally unobservable and include situations where there is little, if any, market activity for the investment. The inputs into the determination of fair value require management's judgment or estimation of assumptions that market participants would use in pricing the assets or liabilities. The fair values are therefore determined using factors that involve considerable judgment and interpretations, including but not limited to private and public comparables, third-party appraisals, discounted cash flow models and fund manager estimates.

Financial instruments measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. Management's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment and considers factors specific to the asset or liability. The use of different assumptions and/or estimation methodologies may have a material effect on estimated fair values. Accordingly, the fair value estimates disclosed or initial amounts recorded may not be indicative of the amount that the Company or holders of the instruments could realize in a current market exchange.

The following tables present the Company's fair value hierarchy for its warrant liabilities measured at fair value on a recurring basis at September 30, 2020 and 2019:

	Fair Value Measurements as of September 30, 2020			
	(Level 1)	(Level 2)	(Level 3)	Total
Liabilities				
Warrant liabilities	$ -	-	950,151	$ 950,151

	Fair Value Measurements as of September 30, 2019			
	(Level 1)	(Level 2)	(Level 3)	Total
Liabilities				
Warrant liabilities	$ -	-	496,343	$ 496,343

The following assumptions were used in determining the fair value of the warrant liabilities as of September 30, 2020 and 2019:

	As of September 30,	
	2020	2019
Remaining contractual term (years)	1.2 - 1.5	2.2 - 2.5
Common stock price volatility	91.1% - 96.1%	76.6% - 78.4%
Risk-free interest rate	0.12% - 0.13%	1.6% - 1.63%
Expected dividend yield	-	-

The change in fair value of the warrant liabilities for the years ended September 30, 2020 and 2019 is as follows:

	Warrant liabilities
Fair value as of September 30, 2018	$ -
Warrants issued in connection with license acquired- CMU	104,902
Warrants assumed in connection with acquisition of Ohr	470,093
Extinguishment of warrant liability related to the cashless exercise of warrants	(429,677)
Extinguishment of warrant liability related to warrants redeemed for cash	(141,864)
Change in fair value	492,889
Fair value as of September 30, 2019	496,343
Change in fair value	453,808
Fair value as of September 30, 2020	$ 950,151

As of September 30, 2020 and 2019, the recorded values of cash and cash equivalents, accounts payable and the insurance note payable approximate fair value due to the short-term nature of the instruments.

Equipment

Equipment is stated at cost less accumulated depreciation. Depreciation is provided on a straight-line basis over the estimated useful lives of the assets. The Company estimates useful lives as follows:

- Laboratory equipment: five years
- Office equipment: three years

Intangible Assets

Identifiable intangible assets includes clinical trial data acquired in the Ohr Acquisition. The intangible asset was amortized over its estimated useful life (approximately six months), which approximates the pattern in which the assets' economic benefits were consumed. The fair value of the intangible asset was determined using actual and potential market transactions which are management's best estimates of inputs and assumptions that a market participant would use. The estimates are based on assumptions that the Company believes to be reasonable, but such assumptions are subject to unpredictability and uncertainty.

For amortizable intangible assets, the Company performs an impairment analysis when circumstances suggest that the carrying values of those assets may not be recoverable. Recoverability of an asset to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted cash flows expected to be generated by the asset. If such asset is considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the asset exceeds its fair value. As of September 30, 2020 and 2019, the carrying value of the intangible asset was $0 and $0.1 million, respectively.

Impairment of Long-Lived Assets

The Company reviews the carrying value of long-lived assets for indicators of possible impairment whenever events and circumstances indicate that the carrying value of an asset or asset group may not be recoverable from the estimated future net undiscounted cash flows expected to result from its use and eventual disposition. In cases where estimated future net undiscounted cash flows are less than the carrying value, an impairment loss is recognized equal to an amount by which the carrying value exceeds the fair value of the asset or asset group. The factors that would be considered by management in performing this assessment include current operating results, trends and prospects, the manner in which the property is used and the effects of obsolescence, demand, competition and other economic factors. Based on this assessment, there was no impairment at September 30, 2020 and 2019.

Investment

The Company's investment consists of common and preferred shares of DepYmed, Inc.

Investments that the Company has the ability to exercise significant influence over are accounted for as equity method investments. Equity method investments are recorded at cost plus the proportional share of the issuer's income or loss.

Investments that do not have a readily determinable fair value and qualify for the measurement alternative for equity investments provided in ASC 321, are accounted for at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for an identical or similar investment of the same issuer.

Operating Leases

Effective October 1, 2019, the Company determines if an arrangement is a lease at inception. Operating leases are included in operating right-of-use ("ROU") assets and operating lease liabilities on the consolidated balance sheets. Prior to October 1, 2019, the Company recorded rent expense associated with its operating lease on a straight-line basis over the term of the lease.

Lease ROU assets and operating lease liabilities are initially recognized based on the present value of the future minimum lease payments over the lease term at commencement date calculated using the Company's incremental borrowing rate applicable to the lease asset, unless the implicit rate is readily determinable. ROU assets also include any lease payments made at or before lease commencement and exclude any lease incentives received. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Leases with a term of 12 months or less are not recognized on the Company's consolidated balance sheet. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term. The Company accounts for lease and non-lease components as a single lease component for all its leases.

As of September 30, 2020, the Company's leases had original terms of 12 months or less. The Company does not recognize ROU assets and lease liabilities that arise from leases with an original term of 12 months or less. Rather, the Company recognizes the lease expense on a straight-line basis over the term of the lease.

Research and Development

The Company expenses research and development costs as operating expenses as incurred. Research and development expenses consist primarily of:

- salaries and related benefits for personnel in research and development functions, including stock-based compensation and benefits;
- fees paid to consultants and contract research organizations for preclinical development work on our PATrOL™ platform and programs;
- allocation of facility lease and maintenance costs;
- depreciation of laboratory equipment and computers;
- costs related to purchasing raw materials for and producing our product candidates;
- costs related to compliance with regulatory requirements; and
- license fees related to in-licensed technologies.

Research and Development Expense- Licenses Acquired

The Company evaluates whether acquired intangible assets are a business under applicable accounting standards. Additionally, the Company evaluates whether the acquired assets have an alternative future use. Intangible assets that do not have alternative future use are considered acquired in-process research and development. When the acquired in-process research and development assets are not part of a business combination, the value of the consideration paid is expensed on the acquisition date. Future costs to develop these assets are recorded to research and development expense as they are incurred.

Stock-Based Compensation

The Company expenses stock-based compensation to employees, non-employees and board members over the requisite service period based on the estimated grant-date fair value of the awards and actual forfeitures. The Company accounts for forfeitures as they occur. Stock-based awards with graded-vesting schedules are recognized on a straight-line basis over the requisite service period for each separately vesting portion of the award.

The Company estimates the fair value of stock option grants using the Black-Scholes option pricing model, and the assumptions used in calculating the fair value of stock-based awards represent management's best estimates and involve inherent uncertainties and the application of management's judgment. The Company was historically a private company and lacked company-specific historical and implied volatility information. Therefore, it estimates its expected stock volatility based on the historical volatility of a publicly traded set of peer companies. Additionally, due to an insufficient history with respect to stock option activity and post-vesting cancellations, the expected term assumption for employee grants is based on a permitted simplified method, which is based on the vesting period and contractual term for each tranche of awards. The mid-point between the weighted-average vesting term and the expiration date is used as the expected term under this method. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve in effect for time periods approximately equal to the expected term of the award. Expected dividend yield is zero based on the fact that the Company has never paid cash dividends and does not expect to pay any cash dividends in the foreseeable future.

All stock-based compensation costs are recorded in general and administrative or research and development costs in the consolidated statements of operations based upon the underlying individual's role at the Company.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred income taxes are recorded for temporary differences between financial statement carrying amounts and the tax basis of assets and liabilities. Deferred tax assets and liabilities reflect the tax rates expected to be in effect for the years in which the differences are expected to reverse. A valuation allowance is provided if it is more likely than not that some or all of the deferred tax assets will not be realized.

The Company also follows the provisions of accounting for uncertainty in income taxes which prescribes a model for the recognition and measurement of a tax position taken or expected to be taken in a tax return, and provides guidance on derecognition, classification, interest and penalties, disclosure and transition. In accordance with this guidance, tax positions must meet a more likely than not recognition threshold and measurement attribute for the financial statement recognition and measurement of tax position.

The Company's policy is to account for income tax related interest and penalties in income tax expense in the accompanying consolidated statements of operations.

Net Loss Per Share

Basic net loss per share is computed by dividing net loss applicable to common stockholders by the weighted average number of shares of common stock outstanding during each period. Diluted net loss per share includes the dilutive effect, if any, from the potential exercise or conversion of securities, such as convertible debt, warrants and stock options that would result in the issuance of incremental shares of common stock. In computing the basic and diluted net loss per share applicable to common stockholders, the weighted average number of shares remains the same for both calculations due to the fact that when a net loss exists, dilutive shares are not included in the calculation as the impact is anti-dilutive.

Recent Accounting Standards

In February 2016, the FASB issued ASU 2016-2, *Leases*. The new standard establishes a right-of-use ("ROU") model that requires a lessee to record a ROU asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. The Company adopted this new lease standard on October 1, 2019 using a modified retrospective transition approach for leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, with certain practical expedients available. The adoption of the new lease standard did not have an impact on the Company's consolidated financial statements as the Company did not have any leases with original terms longer than 12 months at the adoption date and as of September 30, 2020.

In December 2019, the FASB issued ASU No. 2019-12, *"Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes"* ("ASU 2019-12"), which is intended to simplify various aspects related to accounting for income taxes. ASU 2019-12 removes certain exceptions to the general principles in Topic 740 and also clarifies and amends existing guidance to improve consistent application. This guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020, with early adoption permitted. The Company is currently evaluating the impact of this standard on its consolidated financial statements and related disclosures.

3. Liquidity

The Company has had no revenues from product sales and has incurred operating losses since inception. As of September 30, 2020, the Company had $32.0 million in cash and cash equivalents and during the year ended September 30, 2020 incurred a loss from operations of $17.1 million and used $10.7 million of cash in operating activities.

The Company has historically funded its operations through the sale of common stock and the issuance of convertible notes and warrants. The Company expects to continue to incur significant operating losses for the foreseeable future and may never become profitable. As a result, the Company will likely need to raise additional capital through one or more of the following: the issuance of additional debt or equity or the completion of a licensing transaction for one or more of the Company's pipeline assets. Management believes that it has sufficient working capital on hand to fund operations through at least the next twelve months from the date these consolidated financial statements were issued. There can be no assurance that the Company will be successful in acquiring additional funding, that the Company's projections of its future working capital needs will prove accurate, or that any additional funding would be sufficient to continue operations in future years.

4. Acquisition of Ohr Pharmaceutical, Inc.

As described in Note 1, on July 12, 2019, the Company completed the acquisition of Ohr in accordance with the terms of the Acquisition Agreement. The acquisition was accounted for as a reverse asset acquisition.

Pursuant to the Acquisition Agreement, the Company issued to Legacy NeuBase stockholders, optionholders, warrant holders and noteholders of Legacy NeuBase a number of shares of Ohr common stock representing approximately 85% of the fully diluted common stock of Ohr. The cost of the Ohr acquisition, which represents the consideration transferred to Ohr's stockholders in the Ohr Acquisition, was calculated based on the fair value of common stock of the combined company that Ohr stockholders own as of the closing of the Ohr Acquisition on July 12, 2019. With no active trading market for shares of Legacy NeuBase common stock, fair value of the Ohr common stock represents a more reliable measure of the fair value of consideration transferred in the acquisition. The cost of the Ohr acquisition of $12.7 million consists of the following:

Number of shares of the combined company to be owned by Ohr security holders		2,829,248
Fair value per share of Ohr common stock as of July 11, 2019	$	4.14
Fair value of Ohr shares outstanding		11,713,087
Fair value of options assumed		63,840
Fair value of common stock and options issued		11,776,927
Transaction costs		884,981
Total cost of the Ohr acquisition	$	12,661,908

The total cost of the Ohr Acquisition was allocated to the net assets acquired as follows:

Cash and cash equivalents	$	752,419
Prepaid expenses and other current assets		115,769
Investment in DepYmed		586,418
Intangible assets		250,000
Warrant liability		(470,093)
Accounts payable and accrued expenses		(493,055)
Fair value of net assets acquired		741,458
Research and development expense- License acquired		11,920,450
Total cost of Ohr Acquisition	$	12,661,908

The Company identified an intangible asset related to Ohr's clinical trial data with an estimated fair value of $0.3 million. This intangible asset was amortized on a straight-line basis over its estimated useful life of six months.

As of the asset acquisition date, Ohr's SKS sustained release ocular drug delivery platform technology ("SKS Technology") acquired had not yet attained regulatory approval. Accordingly, this intangible asset represents an in-process research and development asset with no future alternative use and was immediately expensed under the guidance of Accounting Standard Codification ("ASC") 730, *Research and Development*, upon the asset acquisition.

5. License Agreement with Carnegie Mellon University

On December 17, 2018, Legacy NeuBase entered into a License Agreement with Carnegie Mellon University (the "CMU License Agreement"). Under the CMU License Agreement, Carnegie Mellon University ("CMU") granted Legacy NeuBase an exclusive, worldwide right to the PATrOL™ technology, with patents and patent applications describing composition of matter and uses of the platform.

As partial consideration for the license right, Legacy NeuBase issued and delivered to CMU 820,000 shares of Legacy NeuBase common stock (or 835,625 shares of common stock of the Company converted at the Exchange Ratio provided for in the Acquisition Agreement), which constituted 8.2% of the then fully-diluted capitalization of Legacy NeuBase. Further, as partial consideration for the license right, Legacy NeuBase issued a warrant to CMU, exercisable only upon the earlier of (i) the day that Legacy NeuBase receives cumulative capital funding or revenues equal to $2 million or (ii) 30 days prior to any change of control event that provides for the issuance of shares, for a number of shares of Legacy NeuBase common stock sufficient such that when added to the 820,000 shares of Legacy NeuBase common stock, CMU holds in the aggregate an amount equal to 8.2% of the fully-diluted capitalization of Legacy NeuBase; provided, however, that for purposes of calculating 8.2%, only the first $2 million of capital funding shall be considered in the determination of Legacy NeuBase's fully-diluted capitalization. Under the CMU License Agreement, CMU has preemptive rights with respect to certain future sales of securities by Legacy NeuBase for capital-raising purposes, "piggyback" registration rights and co-sale rights with respect to certain resales of shares of Legacy NeuBase by Legacy NeuBase's stockholders.

Pursuant to the CMU License Agreement, Legacy NeuBase must achieve certain milestones to demonstrate certain developments of the licensed product. Legacy NeuBase may obtain one six-month extension to meet each milestone with a nominal payment to CMU. Further, subject to certain conditions, Legacy NeuBase will pay to CMU royalties at a percentage of net sales in the low single digits and sublicensing fees.

The Company recognized research and development expense totaling approximately $1.0 million during the year ended September 30, 2019 for the value of consideration paid in connection with the license agreement. The consideration paid for the license right is as follows:

Cash consideration	$	54,000
Acquisition costs		43,463
Fair value of common stock		844,600
Fair value of warrant liability issued		104,902
Total consideration	$	1,046,965

6. Equipment

The Company's equipment consisted of the following:

	As of September 30,			
		2020		2019
Laboratory equipment	$	1,319,123	$	452,817
Office equipment		6,477		2,383
Total		1,325,600		455,200
Accumulated depreciation		(158,666)		(24,205)
Property, plant and equipment, net	$	1,166,934	$	430,995

Depreciation expense for the years ended September 30, 2020 and 2019 was approximately $0.1 million and $0.02 million, respectively.

7. Intangible Assets

The Company's intangible assets consisted of the following:

	As of September 30,			
		2020		2019
Clinical trial data	$	250,000	$	250,000
Accumulated amortization		(250,000)		(104,167)
Intangible assets, net	$	-	$	145,833

Amortization expense for the years ended September 30, 2020 and 2019 was approximately $0.1 million and $0.1 million, respectively.

8. Investment

On February 26, 2014, Ohr entered into a Joint Venture Agreement and related agreements with Cold Spring Harbor Laboratory ("CSHL") pursuant to which a joint venture, DepYmed Inc. ("DepYmed"), was formed to further preclinical and clinical development of the Company's intellectual property for rare diseases and oncology. DepYmed licenses research from CSHL and intellectual property from the Company.

Following the Ohr Acquisition, the Company owns common and preferred shares of DepYmed, which in aggregate represents approximately 15% ownership of DepYmed. In addition, the Company is entitled to hold two of the six seats on DepYmed's board of directors.

The Company accounts for its investment in DepYmed common shares using the equity method of accounting and records its proportionate share of DepYmed's net income and losses in the accompanying consolidated statements of operations.

The Company accounts for its investment in preferred shares of DepYmed at cost, less any impairment, as the Company determined the preferred stock did not have a readily determinable fair value.

The carrying value of the Company's total investment is DepYmed is as follows:

	As of September 30,			
		2020		2019
Fair value of DepYmed common shares assumed in connection with acquisition of Ohr	$	487,398	$	487,398
Equity in losses on equity method investment		(262,861)		-
Carrying value of DepYmed common shares		224,537		487,398

Fair value of DepYmed preferred shares assumed in connection with acquisition of Ohr	99,020	99,020
Total Investment	$ 323,557	$ 586,418

9. Accrued Expenses and Other Current Liabilities

The Company's accrued expenses and other current liabilities consisted of the following:

	As of September 30,	
	2020	2019
Accrued compensation and benefits	$ 88,527	$ 34,625
Accrued interest	3,707	10,830
Accrued professional fees	241,755	156,919
Accrued research and development	41,313	88,553
Other accrued expenses	180,581	114,672
Total	$ 555,883	$ 405,599

10. Notes Payable

Insurance Note Payable

As of September 30, 2020 and 2019, the Company had the following insurance notes payable outstanding:

	Maturity Date	Stated Interest Rate	Original Principal	Balance at September 30, 2020	Balance at September 30, 2019
2020 Insurance Note	December 2020	5.25%	$ 365,430	$ 138,557	$ -
2019 Insurance Note	February 2020	5.75%	213,000	-	122,919

Convertible Notes Payable

During the year ended September 30, 2019, the Company entered into convertible note agreements with investors with an aggregate principal of $0.6 million. Together with outstanding convertible note as of September 30, 2018 of $0.3 million, the aggregate principal amount of the convertible notes was $0.9 million and were due one to two years from issuance, no later February 2021, with simple interest at the rate of 6% per annum.

The outstanding principal and accrued interest of each convertible note automatically converted into shares of Legacy NeuBase common stock, upon the issuance of Legacy NeuBase common stock in connection with the pre-acquisition financing, by dividing the then-outstanding balance of each convertible note by 90% of the purchase price per share paid by investors in the pre- acquisition financing, or $1.6145. In connection with the closing of the pre-acquisition financing, the convertible notes plus unpaid interest were converted into 598,472 shares of Legacy NeuBase common stock at a price of $1.6145 per share. Upon the consummation of the Ohr Acquisition, the convertible note shares were converted pursuant to the Exchange Ratio in the Acquisition Agreement into the right to receive 609,874 shares of common stock.

During the year ended September 30, 2019, the Company recognized cumulative interest expense of $0.1 million, which includes approximately $0.1 million related to the amortization of the discount on the convertible note agreements.

11. Stockholders' Equity

Preferred Stock

The Company is authorized to issue 10 million shares of preferred stock, par value $0.0001 as of September 30, 2020 and 2019. No shares of preferred stock were issued or outstanding as of September 30, 2020 or 2019.

Common Stock

The Company has authorized 250 million shares of common stock, $0.0001 par value per share as of September 30, 2020 and 2019. Each share of common stock is entitled to one voting right. Common stock owners are entitled to dividends when funds are legally available and declared by the Company's board of directors.

Common Stock Offering

On April 30, 2020, the Company closed an underwritten public offering of 6,037,500 shares of its common stock (inclusive of 787,500 shares that were sold pursuant to the underwriters' full exercise of their option to purchase additional shares of the Company's common stock), at a price to the public of $6.00 per share. The Company received net proceeds from the offering of approximately $33.3 million, after deducting the underwriting discounts and commissions and other estimated offering expenses payable by the Company. The Company intends to use the net proceeds from this offering for working capital and general corporate purposes and to advance the development of its product candidates and expand its pipeline.

Pre-Acquisition Financing

On July 11, 2019, Legacy NeuBase closed a private placement transaction, whereby, among other things, Legacy NeuBase issued to certain investors shares of Legacy NeuBase common stock immediately prior to the Ohr Acquisition in a private placement transaction (the "Pre-Acquisition Financing").

At the closing of the Pre-Acquisition Financing, Legacy NeuBase issued and sold to the Pre-Acquisition Financing investors an aggregate of 5,202,879 shares of Legacy NeuBase's common stock, resulting in approximately $8.3 million net of issuance costs. Upon the consummation of the Ohr Acquisition, the Pre-Acquisition Financing shares were converted pursuant to the Exchange Ratio in the Acquisition Agreement into the right to receive 5,302,005 shares of common stock.

Post-Acquisition Private Placement

On July 12, 2019, the Company entered into a Common Stock Purchase Agreement (the "Purchase Agreement") with certain accredited investors for the sale by the Company in a private placement (the "Private Placement") of an aggregate 1,538,462 shares of common stock, at a purchase price of $3.25 per share. The closing of the Private Placement occurred on July 15, 2019. The aggregate net proceeds from the sale of the common stock was approximately $5.0 million.

Convertible Notes

As described in Note 10, in connection with the closing of the Pre-Acquisition Financing, the convertible notes plus unpaid interest, of approximately $1.0 million were converted into 598,472 shares of Legacy NeuBase common stock at a price of $1.6145 per share. Upon the consummation of the Ohr Acquisition, the convertible note shares were converted pursuant to the Exchange Ratio in the Acquisition Agreement into the right to receive 609,874 shares of common stock.

Asset Acquisitions

As described in Note 5, in connection with the acquisition of the CMU License Agreement, Legacy NeuBase issued 820,000 shares of Legacy NeuBase common stock. Upon the consummation of the Ohr Acquisition, the shares issued in connection with the CMU License Agreement were converted pursuant to the Exchange Ratio in the Acquisition Agreement into the right to receive 835,625 shares of common stock.

As described in Note 4, in connection with the acquisition of Ohr, the Company issued to Legacy NeuBase stockholders, option holders, warrant holders and noteholders of NeuBase a number of shares of Ohr common stock at the exchange rate of 1.019055643 shares of common stock for each share of Legacy NeuBase's common stock outstanding immediately prior to the Ohr Acquisition. The common stock of the combined company that Ohr stockholders owned as of the closing of the Ohr Acquisition on July 12, 2019 is 2,829,248 shares of common stock.

Treasury Stock

At September 30, 2018, Legacy NeuBase had sold 5,620,000 shares of Legacy NeuBase common stock (or 5,727,090 shares of common stock of the Company converted at the Exchange Ratio provided for in the Acquisition Agreement) to Legacy NeuBase's founders and other employees and service providers for gross proceeds of $55. The Legacy NeuBase common stock issued to the Company's employees was eligible to be repurchased by the Company for a 36 month period following the sale, subject to the amount available for repurchase, in the event the purchaser is no longer providing services to the Company. The Company's repurchase of eligible shares was to be at a price per share equal to the lesser of (i) the fair market value of the shares at the time the repurchase option is exercised, as determined by the Company's board of directors, and (ii) the original purchase price. The Company was able to exercise its repurchase option as to any or all of the shares available for repurchase at any time after the restricted stock purchaser ceases to provide services to Legacy NeuBase. During the year ended September 30, 2019, the Company repurchased 1,375,000 shares of Legacy NeuBase common stock (or 1,401,202 shares of common stock of the Company converted at the Exchange Ratio provided for in the Acquisition Agreement) for $14. During the year ended September 30, 2019, the Company retired the 1,375,000 shares of Legacy NeuBase common stock (or 1,401,202 shares of common stock of the Company converted at the Exchange Ratio provided for in the Acquisition Agreement).

Warrants

Below is a summary of the Company's issued and outstanding warrants as of September 30, 2020:

Expiration date	Exercise Price	Warrants Outstanding
December 13, 2021	$ 55.00	20,627
April 10, 2022	20.00	695,312
July 6, 2023	8.73	105,000
		820,939

	Warrants	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)
Outstanding as of September 30, 2018	-	$ -	-
Assumed in connection with acquisition of Ohr	804,940	24.22	
Issued in connection with license acquired- CMU	103,787	-	
Exercised	(103,787)	-	
Redeemed	(76,501)	55.00	
Outstanding as of September 30, 2019	728,439	20.99	
Issued	105,000	8.73	
Expired	(12,500)	20.00	
Outstanding as of September 30, 2020	820,939	$ 19.44	1.7
Exercisable as of September 30, 2020	750,939	$ 20.44	1.6

During the year ended September 30, 2020, the Company issued 105,000 warrants in exchange for certain financial advisory services. The warrants vest over a six-month period, have an exercise price of $8.73 per share and expire on July 6, 2023. The Company determined the warrants issued in exchange for financial advisory services met the scope exception in ASC 815 and are therefore classified as equity. The Company determined the initial fair value of be $0.5 million, which will be recognized as share-based compensation expense over the vesting period of the warrants, see Note 13.

During the year ended September 30, 2019, in connection with the Ohr Acquisition described in Note 1, the Company assumed outstanding warrants issued by Ohr and were measured at fair value. The Company determined 792,440 of the warrants assumed from Ohr should be accounted for as a liability in accordance with the guidance in ASC 815, *Derivatives and Hedging*. The subsequent changes in the fair value of the derivative warrants are recorded in earnings each reporting period. The Company determined 12,500 warrants assumed from Ohr met the scope exception in ASC 815 and are therefore classified as equity. Subsequent changes in fair value are not recognized as long as the contract continues to be classified in equity.

During the year ended September 30, 2019, 76,501 warrants acquired from Ohr were redeemed for cash of approximately $0.1 million.

During the year ended September 30, 2019, in connection with the acquisition described in Note 5, the Company issued a warrant, exercisable only upon the occurrence of certain events, for a number of shares of Legacy NeuBase common stock sufficient such that when added to the 820,000 shares of Legacy NeuBase common stock issued to CMU, CMU would hold in the aggregate an amount equal to 8.2% of the fully-diluted shares of the Legacy NeuBase's common stock; provided, however, that for the purpose of calculating the 8.2%, only the first $2 million in funding shall be considered (the "CMU Warrant"). The CMU Warrant had an aggregate exercise price of $10.00, was exercisable upon the earlier of the (i) the day that the Company's cumulative capital funding and/or receipt of cumulative revenue equals the sum of $2.0 million or (ii) 30 days prior to any Qualified Sale (as defined in the CMU License Agreement) or any other merger, consolidation, reorganization, combination or similar transaction in which the Owners of the Company immediately before such transaction do not continue to control at least a majority of the voting interests in the Company after such transaction. The CMU Warrants became exercisable upon the Pre-Acquisition Financing and the CMU Warrant was exercised for 101,847 shares of Legacy NeuBase common stock (the "CMU Warrant Shares"). Upon the consummation of the Ohr Acquisition, the CMU Warrant Shares were converted pursuant to the Exchange Ratio in the Acquisition Agreement into 103,787 shares of common stock.

12. Net Loss Per Common Share

The following potentially dilutive securities outstanding for the year ended September 30, 2020 and 2019 have been excluded from the computation of diluted weighted average shares outstanding, as they would be anti-dilutive:

	As of September 30,	
	2020	2019
Common stock purchase options	6,190,790	6,375,966
Unvested restricted stock	-	6,875
Common stock purchase warrants	820,939	728,439
	7,011,729	7,111,280

13. Stock-Based Compensation

The Company has a 2016 Consolidated Stock Incentive Plan (the "2016 Plan") and a 2019 Stock Incentive Plan (the "2019 Plan"), which provide for the issuance of incentive and non-incentive stock options, restricted and unrestricted stock awards, stock unit awards and stock appreciation rights. Options and restricted stock units granted generally vest over a period of one to four years and have a maximum term of ten years from the date of grant. Upon completion of the Ohr Acquisition, the Company assumed the awards outstanding under the NeuBase Therapeutics, Inc. 2018 Equity Incentive Plan.

As of September 30, 2020, an aggregate of 3,783,114 shares of common stock were authorized under the 2019 Plan, subject to an "evergreen" provision that will automatically increase the maximum number of shares of Common Stock that may be issued under the term of the 2019 Plan. As of September 30, 2020, 981,827 common shares were available for future grants under the 2019 Plan. As of September 30, 2020, 291,667 shares of common stock were authorized under the 2016 Plan and 147,041 common shares were available for future grants under the 2016 Plan.

Stock Options

Below is a table summarizing the options issued and outstanding as of and for the years ended September 30, 2020 and 2019:

	Stock Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Total Aggregate Intrinsic Value
Outstanding as of September 30, 2018	-	$ -		
Assumed in connection with license acquired- Ohr	106,000	13.3		
Granted	6,269,966	2.52		
Outstanding at September 30, 2019	6,375,966	2.70		
Granted	444,536	7.38		
Exercised	(31,731)	5.42		
Forfeited	(597,981)	5.42		
Outstanding at September 30, 2020	6,190,790	2.76	8.4	$ 30,616,018
Exercisable as of September 30, 2020	4,250,243	$ 1.36	8.2	$ 27,097,326

As of September 30, 2020, the unrecognized compensation costs of $4.2 million will be recognized over an estimated weighted-average amortization period of 1.3 years.

The intrinsic value of stock options exercised during the year ended September 30, 2020 was $0.1 million. No options were exercised during the year ended September 30, 2019.

The weighted average grant date fair value of options granted during the year ended September 30, 2020 and 2019 was $5.23 and $2.31.

Key assumptions used to estimate the fair value of the stock options granted during the years ended September 30, 2020 and 2019 included:

	Year Ended September 30,	
	2020	2019
Expected term of options (years)	6 - 7	1.6- 7
Expected common stock price volatility	78% - 84.3%	75.6% - 78.4%
Risk-free interest rate	0.2% - 1.8%	1.8% - 2.5%
Expected dividend yield	-	-

Restricted Stock

A summary of the changes in the outstanding restricted stock during the years ended September 30, 2020 and 2019 is as follows:

	Unvested Restricted Stock	Weighted Average Grant Date Fair Value Price
Unvested as of September 30, 2018	-	$ -
Granted	1,532,984	1.31
Vested	(1,526,109)	1.29
Unvested as of September 30, 2019	6,875	$ 6.24
Granted	6,980	7.52
Vested	(13,855)	6.89
Unvested as of September 30, 2020	-	$ -
Total unrecognized expense remaining	$ -	
Weighted-average years expected to be recognized over	-	

During the year ended September 30, 2019, Legacy NeuBase sold restricted stock to consultants for services to be provided to Legacy NeuBase and entered into related restricted stock agreements. The gross proceeds from the sale of the restricted stock was approximately $1,000. The restricted stock was scheduled to vest over a period of 3 years, subject to accelerated vesting upon certain performance targets. Upon closing of the Ohr Acquisition, Legacy NeuBase accelerated the vesting of the restricted stock issued to the consultants.

The fair value of restricted stock that vested during the years ended September 30, 2020 and 2019 was $0.1 million and $8.2 million, respectively.

Warrants

As described in Note 11, during the year ended September 30, 2020, the Company issued 105,000 warrants in exchange for certain financial advisory services. The warrants vest over a six-month period, have an exercise price of $8.73 per share and expire on July 6, 2023. The Company determined the initial fair value to be $0.5 million, The fair value of option grants are estimated using the Black-Scholes option-pricing model.

Key assumptions used to estimate the fair value of the advisory warrants granted during the year ended September 30, 2020:

	Year Ended September 30, 2020
Remaining contractual term (years)	3.0
Common stock price volatility	86.4%
Risk-free interest rate	0.19%
Expected dividend yield	-

As of September 30, 2020, the unrecognized compensation costs for the advisory warrants of $0.3 million will be recognized over the remaining vesting period of 0.3 years.

The Company recorded stock-based compensation expense in the following expense categories of its consolidated statements of operations for the years ended September 30, 2020 and 2019:

	Year Ended September 30, 2020	Year Ended September 30, 2019
General and administrative	$ 3,729,061	$ 6,543,575
Research and development	1,465,723	2,415,391
Total	$ 5,194,784	$ 8,958,966

14. Income Taxes

The Company has accumulated net losses since inception and has not recorded an income tax provision or benefit for the United States (U.S.) federal and state income taxes during the years ended September 30, 2020 and 2019. The components of the income tax benefits, net are as follows:

	For the Year Ended September 30, 2020	For the Year Ended September 30, 2019
Federal		
Current	$ -	$ -
Deferred	(3,417,262)	(2,944,807)
State and Local		
Current	-	-
Deferred	(1,284,255)	(1,106,701)
Change in valuation allowance	4,701,517	4,051,508
Income tax provision (benefit)	$ -	$ -

A reconciliation of income taxes at the statutory federal income tax rate to net income taxes included in the consolidated statements of operations is as follows:

For the Year Ended

September 30,

	2020	2019
U.S. federal income tax expense at the statutory rate	(21.0)%	(21.0)%
State income taxes, net of federal taxes	(7.9)	(7.9)
Stock-based compensation	1.1	0.4
Ohr acquisition	-	12.8
Other permanent items	0.8	0.7
Change in valuation allowance	27.0	15.0
Income tax provision (benefit)	-%	-%

The components of our deferred tax assets and liabilities are:

	September 30, 2020	September 30, 2019
Deferred tax assets		
Net operating loss carryforwards	$ 5,769,484	$ 2,078,877
Stock-based compensation	3,141,385	1,922,438
Amortization	266,360	286,526
Service warrant	67,776	-
Total deferred tax assets	9,245,005	4,287,841
Deferred tax liabilities		
Depreciation	(274,957)	(19,310)
Prepaid expenses	(205,116)	(205,116)
Total deferred tax liabilities	(480,073)	(224,426)
Valuation allowance	(8,764,932)	(4,063,415)
Net deferred tax assets, net of allowances	$ -	$ -

As of each reporting date, the Company considers existing evidence, both positive and negative, that could impact its view with regard to future realization of deferred tax assets. The Company believes that it is more likely than not that the benefit for deferred tax assets will not be realized. In recognition of this uncertainty, a full valuation allowance was applied to the deferred tax assets. The Company did not record a tax provision for the year ended September 30, 2020 and, due to the Company's estimate that the effective tax rate for each year is 0%.

Future realization depends on the Company's future earnings, if any, the timing and amount of which are uncertain as of September 30, 2020. In the future, should management conclude that it is more likely than not that the deferred tax assets are partially or fully realizable, the valuation allowance would be reduced to the extent of such expected realization and the amount would be recognized as a deferred income tax benefit in the Company's consolidated statements of operations.

As of September 30, 2020, the Company had available federal and state total net operating loss carryforwards of approximately $20.0 million. Federal net operating loss carryforwards of approximately $20.0 million carryforward indefinitely. State operating loss carryforwards of approximately $20.0 million, begin to expire in 2039.

Pursuant to Section 382 of the Internal Revenue Code of 1986, as amended, the Company's federal and state net operating loss carryforwards may be limited in the event a cumulative change in ownership of more than 50% occurs within a three-year period. The Company has not completed a Section 382 analysis regarding the limitation of net operating loss carryforwards. There is a risk that changes in ownership have occurred since Company's formation. If a change in ownership were to have occurred, the NOL carryforwards could be limited or restricted. If limited, the related asset would be removed from the deferred tax asset schedule with a corresponding reduction in the valuation allowance. Due to the existence of the valuation allowance, limitations created by future ownership changes, if any, related to the Company's operations will not impact the Company's effective tax rate.

There are open statutes of limitations whereby our US Federal and Pennsylvania tax returns from inception of the Company are subject to audit by the respective taxing authorities in these jurisdictions for taxing authorities in federal and state jurisdictions to audit our tax returns from inception of the Company. There have been no material income tax related interest or penalties assessed or recorded.

No liability for uncertain tax positions or related interest and penalties related to uncertain tax positions is reported in the Company's consolidated financial statements.

15. Related Party Transactions

During the year ended September 30, 2019, the Company utilized the services of LifeX Labs LLC ("LifeX"). These services included accounting consultation and office space rental. Dietrich Stephan, Legacy NeuBase CEO, was the CEO and a director of LifeX until December 28, 2018, when he resigned all positions within LifeX. On January 8, 2019, LifeX terminated the agreement with the Company, and accordingly, the Company has no remaining obligations under the agreement. During the year ended September 30, 2019 the Company incurred expenses of $0.01 million for services provided by LifeX.

16. Commitments and Contingencies

Operating Leases

The Company leases its office and operating space under operating leases with original terms of 12 months or less and which expire at various dates through December 2020; therefore, the Company's operating leases are not recognized as right-of-use assets on the consolidated balance sheet as of September 30, 2020.

Rent expense under the Company's operating leases totaled approximately $0.1 million and $0.04 million for the years ended September 30, 2020 and 2019, respectively.

In August 2020, the Company extended the term of its operating lease in Pittsburgh until December 31, 2020. All terms and conditions remain the same from the current lease. Future minimum rental payments under operating leases with non-cancelable terms as of September 30, 2020 due during the year ended September 2021 are approximately $0.02 million.

In November 2020, the Company extended the term of its rental of office space in New York until November 2021.

Employee Benefit Plans

The Company has a defined contribution savings and investment plan (the "Plan") as allowed under Sections 401(k) and 401(a) of the Internal Revenue Code. The Plan provides employees with tax deferred salary deductions and alternative investment options. Employees are eligible to participate upon employment and may apply for and secure loans from their account in the Plan. The Company did not contribute to the Plan during the years ended September 30, 2020 and 2019.

Litigation

The Company has become involved in certain legal proceedings and claims which arise in the normal course of business. If an unfavorable ruling were to occur, there exists the possibility of a material adverse impact on the Company's results of operations, prospects, cash flows, financial position and brand.

On February 14, 2018, plaintiff Jeevesh Khanna, commenced an action in the Southern District of New York, against Ohr and several current and former officers and directors, alleging that they violated federal securities laws between June 24, 2014 and January 4, 2018. On August 7, 2018, the lead plaintiffs, now George Lehman and Insured Benefit Plans, Inc., filed an amended complaint, stating the class period to be April 8, 2014 through January 4, 2018. The plaintiffs did not quantify any alleged damages in their complaint but, in addition to attorneys' fees and costs, they seek to maintain the action as a class action and to recover damages on behalf of themselves and other persons who purchased or otherwise acquired Ohr common stock during the putative class period and purportedly suffered financial harm as a result. We and the individuals dispute these claims and intend to defend the matter vigorously. On September 17, 2018, Ohr filed a motion to dismiss the complaint. On September 20, 2019, the district court entered an order granting the defendants' motion to dismiss. On October 23, 2019, the plaintiffs filed a notice of appeal of that order dismissing the action and other related orders by the district court. After full briefing and oral argument, on October 9, 2020, the U.S. Court of Appeals for the Second Circuit issued a summary order affirming the district court's order granting the motion to dismiss and remanding the action to the district court to make a determination on the record related to plaintiffs' request for leave to file an amended complaint. On October 16, 2020, the district court requested the parties' positions as to how they proposed to proceed in light of the Second Circuit's decision. After letter briefing on this issue and plaintiffs' alternative request for leave to file a second amended complaint, on November 16, 2020, the district court denied plaintiffs' request to amend and dismissed with prejudice plaintiffs' claims. On December 16, 2020, plaintiffs filed a notice of appeal of that order denying plaintiffs leave to amend. The Company cannot predict at this time whether plaintiffs will choose to pursue any appeal or modification of the dismissal order within the applicable time period. This litigation could result in substantial costs and a diversion of management's resources and attention, which could harm the Company's business and the value of the Company's common stock.

On May 3, 2018, plaintiff Adele J. Barke, derivatively on behalf of Ohr, commenced an action against certain former directors of Ohr, including Michael Ferguson, Orin Hirschman, Thomas M. Riedhammer, June Almenoff and Jason S. Slakter in the Supreme Court, State of New York, alleging that the action was brought in the right and for the benefit of Ohr seeking to remedy their "breach of fiduciary duties, corporate waste and unjust enrichment that occurred between June 24, 2014 and the present." It does not quantify any alleged damages. We and the individuals dispute these claims and intend to defend the matter vigorously. Such litigation has been stayed pursuant to a stipulation by the parties, which has been so ordered by the court, pending a decision in the Southern District case on the motion to dismiss, but that status could change. This litigation could result in substantial costs and a diversion of management's resources and attention, which could harm our business and the value of our common stock.

On March 20, 2019, a putative class action lawsuit was filed in the United States District Court for District of Delaware naming as defendants Ohr and its board of directors, Legacy NeuBase, and Ohr Acquisition Corp., captioned *Wheby v. Ohr Pharmaceutical, Inc., et al*, Case No. 1:19-cv-00541-UNA (the "Wheby Action"). The plaintiffs in the Wheby Action allege that the preliminary joint proxy/prospectus statement filed by Ohr with the SEC on March 8, 2019 contained false and misleading statements and omitted material information in violation of Section 14(a) of the Exchange Act and SEC Rule 14a-9 promulgated thereunder, and further that the individual defendants are liable for those alleged misstatements and omissions under Section 20(a) of the Exchange Act. The complaint in the Wheby Action has not been served on, nor was service waived by, any of the named defendants in that action. The action seeks, among other things, to rescind the Merger or an award of damages, and an award of attorneys' and experts' fees and expenses. The defendants dispute the claims raised in the Wheby Action. Management believes that the likelihood of an adverse decision from the sole remaining action is unlikely; however, the litigation could result in substantial costs and a diversion of management's resources and attention, which could harm our business and the value of our common stock.

17. Subsequent Events

In October 2020, the Company entered into a ten year lease agreement with annual escalating rental payments for office and laboratory space in Pittsburgh, Pennsylvania. The leased premises will serve as the Company's headquarters upon the commencement of the lease. The initial term of the lease commences upon the landlord's delivery of the leased premises in tenant improvement readiness condition. The initial term of the Lease will extend approximately ten years from delivery of the leased premises to us, unless earlier terminated in accordance with the lease. The Company has the right to extend the term of the lease for additional five-year terms. Under the lease, the Company will lease approximately 14,189 square feet of the property. The Company will pay an escalating base rent over the life of the lease of approximately $63,000 to $70,000 per month, and the Company will pay its pro rata portion of property expenses and operating expenses for the property. The Company will measure and recognize the ROU assets and operating lease liability during the first quarter of the year ending September 30, 2021.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our disclosure controls and procedures are designed to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act, is recorded, communicated to our management to allow timely decisions regarding required disclosure, summarized and reported within the time periods specified in the SEC's rules and forms.

Under the supervision and with the participation of our management, including our CEO and Chief Financial Officer ("CFO") who serve as the principal executive officer and the principal financial officer, respectively, we conducted an evaluation of the effectiveness of our disclosure controls and procedures, as such term is defined under Rules 13a-15(e) and 15d-15(e) under the Exchange Act, as of September 30, 2020. Based on this evaluation, our CEO and CFO concluded that our disclosure controls and procedures were effective as of September 30, 2020.

Management's Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rule 13a-15(f). Our internal control over financial reporting is a process designed by, under the supervision and, with the participation of our CEO and CFO who serve as our principal executive officer and principal financial officer, respectively, overseen by our board of directors and implemented by our management and other personnel, to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of our financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes policies and procedures that:

(1) Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of our assets;

(2) Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures are being made only in accordance with authorizations of our management and directors; and

(3) Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, our internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. Management performed an assessment of the effectiveness of our internal control over financial reporting as of September 30, 2020 using criteria established in the *Internal Control-Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on this assessment, management determined that, as of September 30, 2020, our internal control over financial reporting was effective. Because we are a non-accelerated filer and smaller reporting company, Marcum LLP, our independent registered public accounting firm, is not required to attest to or issue a report on the effectiveness of our internal control over financial reporting.

Remediation of the Material Weakness Identified during Fiscal 2019 during the Fourth Fiscal Quarter 2020

As previously disclosed in our 2019 Form 10-K, in connection with the preparation of our financial statements for such fiscal year, our management and the Audit Committee of our board of directors determined that our accounting treatment and valuations pertaining to the PATrOL™ technology license should be modified. In connection with such revisions, our management identified a material weakness in our internal control over financial reporting due to a lack of expertise in complex accounting transactions, which were not operating effectively to provide reasonable assurance that complex transactions were accounted for correctly. We subsequently restated our unaudited condensed consolidated statements of operations and our unaudited condensed consolidated balance sheets as of and for the three months ended December 31, 2018 and as of and for the three and six months ended March 31, 2019 upon the filing of our Quarterly Reports on Form 10-Q for such periods.

To remediate the material weakness associated with complex accounting transactions described above, and to prevent similar deficiencies in the future, during the fiscal year ended September 30, 2019, we undertook remediation measures by hiring a financial accounting consultant to provide accounting advisory services on complex transactions and accounting matters. During fiscal 2020, we added additional controls and procedures, including:

- Engagement of additional personnel that allows for increased oversight of the accounting and finance processes and additional review of complex and non-routine transactions; and

- Re-design of internal controls to ensure more timely quarterly reviews of technical accounting positions documented by our staff and our independent external technical accounting consultants.

As a result of this year-long effort, as of September 30, 2020, our management considers the material weakness identified above remediated as the applicable controls over unusual or non-recurring and significant transactions have, through testing, operated effectively for a sufficient period of time. Any actions we have taken to remediate this deficiency are subject to continued management review, as well as oversight by the Audit Committee of our board of directors.

Inherent Limitations on Effectiveness of Controls

A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Because of inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Accordingly, our disclosure controls and procedures are designed to provide reasonable, not absolute, assurance that the objectives of our disclosure system are met. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Changes in Internal Control over Financial Reporting

As discussed above, we remediated the material weakness over complex accounting transactions during the fourth fiscal quarter of 2020. Other than this remediation, there have been no changes in our internal control over financial reporting that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting during the quarterly period ended September 30, 2020.

ITEM 9B. OTHER INFORMATION

None.

PART III.

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Name	Age[(1)]	Position
Non-Employees Directors		
Dov A. Goldstein, M.D. (2) (4)	52	Director
Diego Miralles, M.D. (3) (4)	58	Director
Franklyn G. Prendergast, M.D., Ph.D. (2) (4)	75	Director
Eric I. Richman (2) (3)	59	Director

Executive Officers		
Dietrich Stephan, Ph.D.	51	President, Chief Executive Officer and Director
Sam Backenroth	36	Chief Financial Officer, Treasurer and Secretary
William Mann	60	Chief Operating Officer
Curt Bradshaw	55	Chief Scientific Officer

(1) Ages as of September 30, 2020.

(2) Member of the Audit Committee.

(3) Member of the Corporate Governance/Nominating Committee.

(4) Member of the Compensation Committee.

There are no family relationships between any of our directors or executive officers.

Board of Directors

Our amended and restated certificate of incorporation provides that the board of directors is to be divided into three classes as nearly equal in number as possible, with directors in each class serving staggered three-year terms. The total size of the board of directors is currently fixed at five directors. The Class I directors (whose terms expire at the 2021 annual meeting of stockholders) are Dov A. Goldstein, M.D. and Eric I. Richman, M.B.A. The Class II directors (whose terms expire at the 2022 annual meeting of stockholders) are Diego Miralles, M.D. and Dietrich Stephan, Ph.D. The Class III director (whose term expires at the 2023 annual meeting of stockholders) is Franklyn G. Prendergast, M.D., Ph.D. Each director will hold office until their term expires, and until their successor is elected and qualified, unless he or she resigns or their seat becomes vacant due to death, removal or other cause in accordance with the our amended and restated bylaws.

Dietrich Stephan, Ph.D., 51, has been our President, Chief Executive Officer and a member of our Board since July 2019. Dr. Stephan was also the founder and Chief Executive Officer of Legacy NeuBase. Before founding Legacy NeuBase, Dr. Stephan was a tenured full professor of Human Genetics at the University of Pittsburgh and Chairman of the Department of Human Genetics at the University of Pittsburgh from 2013 to 2018. During this period of time he also founded and served Chief Executive Officer of the University-owned LifeX Holdings, a healthcare startup incubator, and earlier, as the founding Director (Chairman) of the Neurogenomics Division at the Translational Genomics Research Institute (TGen) and Deputy Director, Discovery Research at TGen. Dr. Stephan is Chairman of Peptilogics, a privately held peptide therapeutics company; a director of Sharp Edge Labs, a privately held small-molecule genetic disease therapeutics company; a director of the FarmaceuticalRx family of companies, a privately held pharmaceutical company developing cannabinoid-based therapies; and partner in Cyto Ventures, an early stage investment fund. In the last five years, Dr. Stephan has held director roles at Pendulum Therapeutics (Chairman of the Board; formerly Whole Biome), a privately held company developing microbiome therapies; CereDx, a privately held home-base stroke detection diagnostics company; Elastogenesis, a privately held pharmaceutical company developing therapies for dermal extracellular matrix regeneration; Western Oncolytics, a privately held pharmaceutical company developing oncolytic viruses; iGenomX, a privately held company developing genome sequencing reagents; Ariel Precision Medicine, a privately held diagnostics company focused on pancreatic disease; and ParaBase, a privately held company focused on developing neonatal genetic diagnostic tests. Dr. Stephan received his B.S. in Biology from Carnegie Mellon University and his Ph.D. in Human Genetics from the University of Pittsburgh. He also completed a fellowship at the National Human Genome Research Institute.

We believe that Dr. Stephan's role as CEO of our Company, experience as the founder of Legacy NeuBase and in the biopharmaceutical industry qualify him to serve as a member of our Board.

Dov A. Goldstein, M.D., 52, has served as a member of our Board since July 2019. Dr. Goldstein is currently the Chief Financial Officer, Chief Business Officer and a director of Indapta, Inc. He was previously Chief Executive Officer and a director of RIGImmune, Inc., and the Chief Financial Officer and Chief Business Officer of Indapta Therapeutics, Inc., as well as a private investor. Prior to that, he was the Chief Financial Officer at Schrödinger, LLC from the fourth quarter of 2017 to the second quarter of 2018. Dr. Goldstein served as a Managing Partner at Aisling Capital, a private investment firm, from 2014 to October 2017, Partner from 2008 to 2014 and a principal at Aisling Capital from 2006 to 2008. Dr. Goldstein served as the Chief Financial Officer of Loxo Oncology, Inc. between July 2014 and January 2015, and was its acting Chief Financial Officer from January 2015 to May 2015. From 2000 to 2005, Dr. Goldstein served as Chief Financial Officer of Vicuron Pharmaceuticals, Inc., which was acquired by Pfizer, Inc. in September 2005. Prior to joining Vicuron, Dr. Goldstein was Director of Venture Analysis at HealthCare Ventures. Dr. Goldstein also completed an internship in the Department of Medicine at Columbia-Presbyterian Hospital. He previously served as a director of ADMA Biologics, Inc. (Nasdaq: ADMA), Loxo Oncology, Inc. (Nasdaq: LOXO) (which was acquired by Eli Lilly), Esperion Therapeutics, Inc. (Nasdaq: ESPR), and Cempra, Inc. (Nasdaq: CEMP) (which was acquired by Melinta Therapeutics, Inc.). Dr. Goldstein received a B.S. from Stanford University, an M.B.A. from Columbia Business School and an M.D. from Yale School of Medicine.

We believe that Dr. Goldstein's medical training and his experience in the biopharmaceutical industry as a venture capital investor, as a biotechnology executive and a member of the boards of directors of other biopharmaceutical companies, as well as his experience in financial matters and his service on audit and compensation committees, qualify him to serve as a member of our Board.

Diego Miralles, M.D., 58, has served as a member of our Board since July 2019. Dr. Miralles is currently a partner at Flagship Pioneering and CEO of one of its portfolio companies, and previously served as Chief Executive Officer of Vividion Therapeutics, Inc., a biotechnology company with a platform to discover and develop small molecule therapeutics, from August 2017 to October 2020. Prior to briefly serving as President of Adaptive Therapeutics, Inc. during 2016 and 2017, Dr. Miralles had an extensive career at Johnson & Johnson, culminating in his position as the Global Head of Innovation, and was involved in the development and approval of PREZISTA® and INTELENCE®. He was the head of the Janssen Research and Early Development unit in La Jolla, CA. While at Johnson & Johnson, he founded and launched the JLABS incubator in 2012 for start-up life science entrepreneurs, and was instrumental in developing and launching Johnson & Johnson's Innovation center model in 2013. He was a member of the management committee at Janssen, one of the largest pharmaceutical companies in the world. He was also a member of the management board of Tibotec BVBA, a leading virology company and a Johnson & Johnson company. Prior to Johnson & Johnson, Dr. Miralles held R&D positions at Trimeris, Inc. and Triangle Pharmaceuticals, Inc., and he was an Assistant Professor at Duke University Medical Center, where he was a bench scientist and an Infectious Disease physician, with a focus on HIV. Dr. Miralles is currently an Adjunct Professor in the Department of Pharmacology at the University of California San Diego. He received his M.D. degree from the Universidad de Buenos Aires, Argentina, completed his internal medicine residency at the Mayo Clinic and was a fellow in Infectious Diseases at Cornell University-New York Hospital.

We believe that Dr. Miralles's extensive experience in the biotechnology industry, and in particular his experience as a chief executive officer and his prior service in executive management roles at Johnson & Johnson, provide him with the qualifications and skills to serve as a member of our Board.

Franklyn G. Prendergast, M.D., Ph.D., 75, has served as a member of our Board since July 2019. Dr. Prendergast retired from the Mayo Clinic in 2014 and is currently the Emeritus Edmond and Marion Guggenheim Professor of Biochemistry and Molecular Biology and Emeritus Professor of Molecular Pharmacology and Experimental Therapeutics at Mayo Medical School. At the Mayo Clinic, he served in several capacities, most significantly, as the Director for Research 1989 – 1992, inclusive, Member of the Mayo Clinic Board of Governors and Executive Committee 1991 – 2007, and Member of the Mayo Clinic Board of Trustees from 1991-2009, inclusive. From 1994 to 2006, he served as a director of Mayo Clinic Cancer Center. He also previously held several other teaching positions at the Mayo Medical School from 1975 through 2014. Dr. Prendergast has served for the National Institute of Health on numerous study section review groups; as a charter member of the Board of Advisors for the Division of Research Grants, now the Center for Scientific Review; the National Advisory General Medical Sciences Council; and the Board of Scientific Advisors of the National Cancer Institute. He held a Presidential Commission for service on the National Cancer Advisory Board. Dr. Prendergast also has served in numerous other advisory roles for the National Institute of Health and the National Research Council of the National Academy of Sciences. He is a member of the board of directors of Cancer Genetics, Inc. (Nasdaq: CGIX) and its audit, compensation and nominating committees, a member of the board of directors of Lantern Pharma, Inc. (Nasdaq: LTRN) and its audit and nominating committees, a member of the board of directors of Perimeter Medical Imaging AI, Inc. (OTCMKTS: NWFFF) and a member of the board of directors of the Infectious Disease Research Institute (IDRI). He previously served on the board of directors of Eli Lilly & Co. from 1995 to 2017 and was a member of Eli Lilly's science and technology committee and public policy and compliance committee, and he previously served on the board of directors of Medibio Limited (ASX: MEB) (OTCQB: MDBIF). Dr. Prendergast obtained his medical degree with honors from the University of West Indies and attended Oxford University as a Rhodes Scholar, earning an M.A. degree in physiology. He obtained his Ph.D. in Biochemistry at the University of Minnesota.

We believe that Dr. Prendergast's extensive experience and expertise as a medical clinician, researcher and academician, particularly in the areas of oncology and personalized medicine, developed through his roles with Mayo Clinic, including serving as director of the Mayo Clinic Cancer Center and the Mayo Clinic Center for Individualized Medicine, qualify him to serve as a member on our Board.

Eric I. Richman, 59, has served as a member of our Board since July 2019. Mr. Richman is currently CEO of Gain Therapeutics, Inc., an early stage biotechnology company and was previously a Venture Partner at Brace Pharma Capital, a life science venture capital firm, from January 2016 to September 2018 and is involved with several private and public biotechnology companies. He also served as Chief Executive Officer of Tyrogenex Inc., a biopharmaceutical company, from 2016 to 2018. Mr. Richman served as the President and Chief Executive Officer of PharmAthene, Inc. ("PharmAthene"), subsequently acquired by Altimmune, Inc., between October 2010 and March 2015. He also served on PharmAthene's board of directors, when the company was listed on the NYSE, from 2010 to 2017. Prior to joining PharmAthene, Mr. Richman held various commercial and strategic positions of increasing responsibility over a 12-year period at MedImmune, Inc. from its inception and was Director, International Commercialization at that company. Mr. Richman served as a director of Lev Pharmaceuticals, Inc. (acquired by Viropharma) and as Chairman of its Commercialization Committee and served as a director of American Bank Incorporated (acquired by Congressional Bancshares). Mr. Richman currently serves as a member of the board of directors of NovelStem International Corp. (OTCMKTS: NSTM), is the co-founder and Chairman of InFuse Holdings and LabConnect, Inc. where he serves as the Chairman of the Board, and previously served as a director of ADMA Biologics, Inc. (Nasdaq: ADMA) (as well as a member of such board's audit, compensation and governance and nominating committees). Mr. Richman received a B.S. in Biomedical Science from the Sophie Davis School of Biomedical Education (CUNY Medical School) and a M.B.A. from the American Graduate School of International Management.

We believe that Mr. Richman's experience in the biotechnology industry, including his successful efforts in gaining FDA drug approvals, as well as his experience as an executive officer of PharmAthene and his service on numerous public and private company boards of directors and on the committees of such boards, provide him with the qualifications and skills to serve as a member of our Board.

Executive Officers

Dietrich Stephan, Ph.D. For a brief biography of Dr. Stephan, please see "DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE – Board of Directors" above.

Sam Backenroth, age 36, has served as our Chief Financial Officer since July 2019. Mr. Backenroth previously served as Chief Financial Officer and Vice President of Business Development of Ohr Pharmaceutical from April 2010 to July 2019, has been a Director of DepYmed, since 2014, and a founder of Orphion Therapeutics, since 2018. Mr. Backenroth has previously worked as an investment banker with The Benchmark Company LLC, an investment banking firm specializing in micro-cap biotech transactions. While at Benchmark, he helped fund numerous small biotech companies raise growth equity capital through a variety of structures. Mr. Backenroth also acted as an advisor to public and private biotech companies in assisting with business development activities, joint ventures, licensing, strategic partnerships, and mergers & acquisitions. He graduated with honors from Touro College with a Bachelor's degree in finance.

William Mann, Ph.D., age 60, has served as our Chief Operating Officer since July 2020. Prior to joining NeuBase, Dr. Mann founded Lodestar Biopharma Solutions LLC, a consultancy supporting early stage companies, in 2018 and supported Stony Brook University's Center for Biotechnology as a BioEntrepreneur in Residence. Dr. Mann previously served as President and Chief Executive Officer of Helsinn Therapeutics (U.S.), Inc., a supportive cancer care company, from September 2009 to February 2018 where he helped transform the R&D start-up with sixteen employees into a profitable commercial company of over one hundred. Prior to Helsinn, Dr. Mann was Vice President of Corporate Development at Sapphire Therapeutics, Inc. where he facilitated the sale of the company while managing the lead Phase 2B program. He also held senior level R&D and business development positions at Novartis and served on its global Cardiovascular & Metabolism Business Franchise Board. Dr. Mann earned an MBA from Rutgers University, a Ph.D. in Biochemistry from the University of Aberdeen, Scotland, and pursued postdoctoral studies in human genetics at The Rockefeller University.

Curt Bradshaw, Ph.D., age 55, has served as our Chief Operating Officer since December 2020. Prior to joining NeuBase, Dr. Bradshaw served as Chief Scientific Officer of Arrowhead Pharmaceuticals, Inc. (Nasdaq: ARWR), a biotechnology company focused on treating intractable diseases by using RNA interference to silence genes that cause such diseases, from November 2019 to November 2020. From November 2018 to November 2019, Dr. Bradshaw was President, Chief Scientific Officer and a member of the board of directors of Tollnine, a company he co-founded to develop novel antibody conjugates for immuno-oncology. From 2012 to 2018, he was Chief Scientific Officer and a member of the board of directors of Solstice Biologics, where he managed and oversaw all company operations and research exploring novel siRNA technologies for the development of human therapeutics. Before Solstice, Dr. Bradshaw was Vice President of Research and Development and Chief Scientific Officer at Traversa Therapeutics where he had primary R&D oversight and was a key strategic contributor to internal technology development, business strategy, and oversaw research alliances with multiple major pharmaceutical collaborators. Traversa had been experiencing financial difficulties prior to Dr. Bradshaw's tenure and, as a result, the company voluntarily filed for Chapter 7 bankruptcy in April 2012. Prior to Traversa, he spent seven years at CovX Research, a cornerstone of the Pfizer, Inc. Bioinnovation and Biotherapeutics Center, where he was a member of the research, development and corporate teams providing strategic and tactical support for research and development programs, co-developing the research pipeline and feeding the clinical portfolio. He also oversaw chemistry efforts ranging from basic research through active pharmaceutical ingredient manufacturing. Prior to CovX, he spent four years at Ligand Pharmaceuticals and was responsible for the chemical development of clinical-phase active pharmaceutical ingredients. Dr. Bradshaw started his career at Abbott Laboratories, where he spent six years as a Research Chemist, Senior Research Chemist and Project Leader. He received a Ph.D. in Organic Chemistry from Texas A&M University.

Code of Ethics

We have adopted a Code of Conduct and Ethics, as amended, that applies to our Chief Executive Officer and to all of our other officers, directors and employees. The Code of Conduct and Ethics is available in the Governance section of the Investors page on our website at www.neubasetherapeutics.com. We will disclose future amendments to, or waivers from, certain provisions of our Code of Conduct and Ethics, if any, on the above website within four business days following the date of such amendment or waiver.

Audit Committee

We have a separately-designated standing audit committee established in accordance with Section 3(a)(58)(A) of the Exchange Act. Our Audit Committee currently consists of Dr. Dov A. Goldstein (Chair), Dr. Franklyn G. Prendergast, and Eric I. Richman. All are non-employee directors and are considered independent under the applicable independence standard promulgated by The Nasdaq Stock Market LLC ("Nasdaq") and the SEC. Our board of directors has currently designated each of Dr. Goldstein and Mr. Richman as an "audit committee financial expert" as defined in Item 407(d)(5)(ii) of Regulation S-K. We believe that the Audit Committee members are capable of analyzing and evaluating our financial statements and understanding internal control over financial reporting.

Compensation Committee

Our Compensation Committee is currently comprised of Dr. Franklyn G. Prendergast (Chair), Dr. Dov A. Goldstein, Dr. Diego Miralles, each of whom is an independent director for purposes of the Nasdaq listing standards. The Compensation Committee reviews and recommends executive compensation, including changes therein, and administers our equity compensation plans.

Compensation Committee Membership, Interlocks and Insider Participation

Each member of the Compensation Committee is a "non-employee" director within the meaning of Rule 16b-3 of the rules promulgated under the Exchange Act. None of Drs. Prendergast, Goldstein, or Miralles is an officer or employee of ours, was formerly an officer of ours or had any relationship requiring disclosure by us under Item 404 of Regulation S-K. No interlocking relationship as described in Item 407(e)(4) of Regulation S-K exists between any of our executive officers or Compensation Committee members, on the one hand, and the executive officers or compensation committee members of any other entity, on the other hand, nor has any such interlocking relationship existed in the past.

Corporate Governance/Nominating Committee

Our Corporate Governance/Nominating Committee currently consists of Dr. Diego Miralles (Chair) and Eric I. Richman. Both are non-employee directors and are considered independent under the applicable independence standard promulgated by Nasdaq and the SEC.

ITEM 11. EXECUTIVE COMPENSATION

Summary Compensation Table

The following table sets forth the compensation paid by us during the years ended September 30, 2020 and 2019 to (1) our principal executive officer during the last completed fiscal year and (2) our two most highly compensated executive officers other than our principal executive officer who were serving as executive officers as of September 30, 2020 (collectively our "Named Executive Officers"):

Name and Position	Year	Salary	Bonus (1)	Stock Awards	Option Awards (2)	Non-Equity Incentive Plan Compensation	All Other Compensation (3)	Total
Dietrich Stephan, Ph.D., Chief Executive Officer and President	2020	$ 441,346	$ —	$ —	$ —	$ —	$ 47,475	$ 488,821
	2019	$ 135,577	$ 332,500	$ —	$ 3,347,500	$ —	$ 19,199	$ 3,834,776
Sam Backenroth, Chief Financial Officer	2020	$ 320,000	$ 20,000	$ —	$ —	$ —	$ 18,524	$ 358,524
	2019	$ 223,539	$ 227,000	$ —	$ 2,937,107	$ —	$ 18,618	$ 3,406,264
William Mann, Ph.D., Chief Operating Officer	2020	$ 57,692	$ 45,000	$ —	$ 917,000	$ —	$ 3,663	$ 1,023,355
	2019	$ —(4)	$ —	$ —	$ —	$ —	$ —	$ —

(1) In the fiscal year ended September 30, 2019, Dr. Stephan received a $25,000 signing bonus and a $150,000 bonus upon the completion of the Merger, and Mr. Backenroth received a $95,000 signing bonus following the Merger pursuant to his employment offer letter, dated May 22, 2019. On May 15, 2020, the Company awarded a cash bonus to Dr. Stephan and Mr. Backenroth in the amount of $157,500 and $132,000, respectively, for services rendered during the fiscal year ended September 30, 2019, which were not committed during such fiscal year and were approved by the Compensation Committee of the Board during May 2020. We paid Dr. Stephan and Mr. Backenroth such cash bonuses on May 15, 2020. In October 2020, the Compensation Committee approved a bonus for Mr. Backenroth in the amount of $20,000 in relation to services rendered to the Company during the fiscal year ended September 30, 2020 because of his election to take a reduction of his base salary during such fiscal year. Pursuant to each offer letter between the Company and between Dr. Stephan and Mr. Backenroth, each of Dr. Stephan and Mr. Backenroth will be eligible for a discretionary bonus for service with the Company during fiscal 2020 equal to 35% of each of their base salaries, each as determined at the discretion of the Compensation Committee. Dr. Mann is eligible for an annual performance bonus with a target amount equal to 40% of his base salary, provided that he remains employed by the Company on the date that such bonus would be paid. In addition, we paid Dr. Mann a relocation bonus of $45,000 with respect to his relocation to our principal office in Pittsburgh, PA during fiscal 2020.

(2) The amounts in this column reflect the aggregate grant date fair value of equity awards granted during the applicable fiscal year, calculated in accordance with FASB ASC Topic 718 and using a Black-Scholes valuation model. Assumptions used in the calculation of these amounts are included in Note 13 of the audited financial statements included in this Form 10-K.

(3) Consists of other compensation amounts for each named executive officer listed in the table entitled "All Other Compensation" below, including our contributions to such officers' 401(k), group term life insurance policy premiums, health benefits and paid time off buy back.

(4) Dr. Mann joined the Company as Chief Operating Officer on July 27, 2020, and therefore did not receive any compensation from the Company for the fiscal year ended September 30, 2019.

All Other Compensation

Name	Year	401(k) Company	Group Term	Health Benefits	Life Insurance	Paid Time Off Buy Back	Total Other Compensation

Dietrich Stephan, Ph.D.	2020	—	$ —	$ 21,761	$ 25,714	—	$ 47,475
Chief Executive Officer	2019	—	$ 239	$ 18,960	—	—	$ 19,199
Sam Backenroth	2020	—	$ —	$ 18,524	—	—	$ 18,524
Chief Financial Officer	2019	—	$ 195	$ 18,423	—	—	$ 18,618
William Mann, Ph.D.	2020	—	$ —	$ 3,663	—	—	$ 3,663
Chief Operating Officer	2019	—	$ —	—	—	—	$ —

Narrative Disclosure to Summary Compensation Table

Base Salary

In general, base salaries for our Named Executive Officers are approved by the compensation committee of our board of directors (the "Compensation Committee") and are initially established through arm's length negotiation at the time the executive is hired, taking into account such executive's qualifications, experience, prior salary and market pay levels. Base salaries of our Named Executive Officers are approved and reviewed annually by our Compensation Committee and adjustments to base salaries are based on the scope of an executive's responsibilities, individual contribution, prior experience and sustained performance. Decisions regarding salary increases may take into account an executive officer's current salary, equity ownership, and the amounts paid to an executive officer's peers inside our company by conducting an internal analysis, which compares the pay of an executive officer to other members of the management team. Base salaries are also reviewed in the case of promotions or other significant changes in responsibility. Base salaries are not automatically increased if the Compensation Committee believes that other elements of the Named Executive Officer's compensation are more appropriate in light of our stated objectives. This strategy is consistent with our intent of offering compensation that is both cost-effective, competitive and contingent on the achievement of performance objectives.

With the exception of a raise in Mr. Backenroth's base salary in July 2019 made in connection with his employment offer letter, dated May 22, 2019, our Named Executive Officers did not receive base salary increases in fiscal 2020 or 2019.

Equity Compensation

The Compensation Committee considers equity incentives to be important in aligning the interests of our executive officers with those of our stockholders. As part of our pay-for-performance philosophy, our compensation program tends to emphasize the long-term equity award component of total compensation packages paid to our executive officers.

Because vesting is based on continued employment, our equity-based incentives also encourage the retention of our Named Executive Officers through the vesting period of the awards. In determining the size of the long-term equity incentives to be awarded to our Named Executive Officers, we take into account a number of internal factors, such as the relative job scope, the value of existing long-term incentive awards, individual performance history, prior contributions to us and the size of prior grants. Based upon these factors, the Compensation Committee determines the size of the long-term equity incentives at levels it considers appropriate to create a meaningful opportunity for reward predicated on the creation of long-term stockholder value.

To reward and retain our Named Executive Officers in a manner that best aligns employees' interests with stockholders' interests, we use stock options and restricted stock unit awards as the primary incentive vehicles for long-term compensation. We believe that stock options and restricted stock unit awards are effective tools for meeting our compensation goal of increasing long-term stockholder value by tying the value of the stock to our future performance. Because employees are able to profit from stock options only if our stock price increases relative to the stock option's exercise price, we believe stock options provide meaningful incentives to employees to achieve increases in the value of our stock over time.

We use stock options, and may also use and restricted stock unit awards, to compensate our Named Executive Officers both in the form of initial grants in connection with the commencement of employment and annual refresher grants. While we intend that the majority of equity awards to our employees be made pursuant to initial grants or our annual grant program, the Compensation Committee retains discretion to grant equity awards to employees at other times, including in connection with the promotion of an employee, to reward an employee, for retention purposes or for other circumstances recommended by management or the Compensation Committee.

The exercise price of each stock option grant is the fair market value of our common stock on the grant date. Time-based stock option awards granted to Dr. Stephan provided for vesting over a four-year period in equal monthly installments over 48 months. Dr. Stephan's time-based stock option awards vested immediately and became exercisable upon the consummation of the Merger. Time-based stock option awards to Mr. Backenroth and Dr. Mann provided for vesting over a four-year period as follows: 25% of the shares underlying the options vest on the first anniversary of the date of the respective vesting commencement dates and the remainder of the shares underlying the options vest in equal monthly installments over the respective remaining 36 months thereafter. From time to time, our Compensation Committee may, however, determine that a different vesting schedule is appropriate. We do not have any stock ownership requirements for our Named Executive Officers.

Compensation Consultant

Our Compensation Committee has the authority to retain the services and obtain the advice of external advisors, including compensation consultants, legal counsel and other advisors to assist in the evaluation of executive officer compensation. In 2020, our Compensation Committee engaged Compensia, an independent executive compensation consulting firm, to review our executive compensation policies and practices and to conduct an executive compensation market analysis.

During fiscal 2020, Compensia reviewed and advised on principal aspects of our executive compensation program, including:

- Assisting in developing a peer group of publicly traded companies to be used to help assess executive compensation;
- Assisting in developing a competitive compensation strategy and consistent executive compensation assessment practices relevant to a public company, including review and recommendation of the annual performance-based cash incentive program as well as the equity strategy for the Company covering dilution, grant levels and type of equity; and
- Meeting with the Compensation Committee to review elements of executive compensation including the competitiveness of the executive compensation program.

Our Compensation Committee has assessed the independence of Compensia consistent with the Nasdaq Stock Market listing requirements and has concluded that the engagement of Compensia does not raise any conflicts of interest.

Outstanding Equity Awards as of September 30, 2020

The following table shows information regarding our outstanding equity awards as of September 30, 2020 for the Named Executive Officers:

	Option Awards					Stock Awards			
Name	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Non-Exercisable (#)	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)	Option Expiration Date (1)	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)	Equity Incentive Plan Awards: Number of Unearned shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market or Payout Value of Unearned Shares, Units or Other Rights That Have Not Vested ($)
Dietrich Stephan, Ph.D.	3,311,930	—	—	$ 0.001	12/31/2028	—	—	—	$ —
Sam Backenroth	225,436	547,487 (2)	—	$ 5.39	7/12/2029	—	—	—	—
	17,500 (3)	—	—	$ 13.40	10/15/2022	—	—	—	—
William Mann, Ph.D.	—	175,000 (4)	—	$ 7.46	7/27/2030	—	—	—	—

(1) The options have a term of 10 years from the date of issuance.

(2) The stock option vests over four years from the date of grant of July 12, 2019, with 25% of the shares subject to the options vesting on the first anniversary of the date of grant and the remainder vesting in 36 monthly tranches thereafter.

(3) The option vested over a three-year period, with one-third of the shares underlying the option vesting on each of October 16, 2017, October 16, 2018 and October 16, 2019; provided that the last one-third vested in full in connection with the closing of the Merger.

(4) The stock option vests over four years from the date of grant of July 27, 2020, with 25% of the shares subject to the options vesting on the first anniversary of the date of grant and the remainder vesting in 36 monthly tranches thereafter.

Payments Upon Termination or Change In Control

We have entered into employment agreements with each of our Named Executive Officers. These agreements set forth the individual's base salary, annual incentive opportunities, equity compensation and other employee benefits, which are described in this Executive Compensation section. All employment agreements provide for "at-will" employment, meaning that either party can terminate the employment relationship at any time, although our agreements with our Named Executive Officers provide that they would be eligible for severance benefits in certain circumstances following a termination of employment without cause. Our Compensation Committee approved the severance benefits to mitigate certain risks associated with working in a biopharmaceutical company at our current stage of development and to help attract and retain qualified executives.

Dietrich A. Stephan, Ph.D.

Historically, Legacy NeuBase had one executive officer, Dietrich A. Stephan, Ph.D., President and Chief Executive Officer. Upon the formation of Legacy NeuBase and until the date that Legacy NeuBase and Dr. Stephan entered into an employment agreement, in recognition of our low levels of operating cash flow and Dr. Stephan's status as a stockholder of Legacy NeuBase, he forewent any cash compensation for his service as an executive officer.

Legacy NeuBase entered into an employment agreement as of December 22, 2018 with Dr. Stephan as its Chief Executive Officer, effective as of August 28, 2018 (the "Stephan Employment Agreement"). Beginning on December 22, 2018, Dr. Stephan's annual base salary was $75,000. If Legacy NeuBase issued and sold shares of its preferred or common stock in one or a series of transactions for aggregate proceeds of at least $4,000,000 (excluding all proceeds realized from the conversion or cancellation of debt in exchange for the issuance of such stock) ("Qualified Financing"), Dr. Stephan's annual base salary would be increased to $450,000, and Legacy NeuBase would pay Dr. Stephan an additional $2,000 per month for his supplemental life and disability insurance policies. Dr. Stephan's annual base salary is subject to increase or decrease by Legacy NeuBase's board of directors or a committee duly appointed by the board.

On or about December 28, 2018, Legacy NeuBase paid Dr. Stephan a bonus of $25,000. Upon the consummation of a Qualified Financing, Dr. Stephan would be eligible for a bonus of $150,000 (the "Bonus"), which may be modified from time to time in the discretion of Legacy NeuBase's board of directors, and would additionally be eligible for an annual bonus of $150,000 ("Annual Bonus") based on the attainment of individual and Legacy NeuBase performance objectives as may be set by Legacy NeuBase's board of directors.

Under the Stephan Employment Agreement, on December 31, 2018, Dr. Stephan was also granted a stock option to purchase 3,250,000 shares of Legacy NeuBase common stock with an exercise price of $0.001 per share. Beginning on August 28, 2018, this stock option began to vest on an equal monthly basis over a 48-month period, subject to Dr. Stephan's continued employment with Legacy NeuBase. Upon completion of the Merger, however, this stock option vested in full, and Dr. Stephan was entitled to exercise his option to purchase 3,311,930 of the combined company's stock at an exercise price adjusted for the exchange ratio pursuant to the Merger Agreement.

Dr. Stephan's employment with Legacy NeuBase was at-will, meaning either Legacy NeuBase or Dr. Stephan could terminate the employment relationship at any time, with or without cause. If Legacy NeuBase terminated Dr. Stephan's employment without "cause" and not on account of his "disability" or Dr. Stephan resigns his employment for "good reason" (as such terms are defined in the Stephan Employment Agreement), then, so long as Dr. Stephan complies with certain obligations, including execution and delivery of a general release within a specified period of time, Legacy NeuBase would pay Dr. Stephan: (1) his base salary as of the termination date for 12 months following the termination date; and (2) subject to the discretion of Legacy NeuBase's board of directors, a pro-rata Bonus or Annual Bonus for the year in which the termination occurs, calculated based on the product of the Dr. Stephan's target Bonus or Annual Bonus times a fraction, the numerator of which is the number of days during the year of termination in which Dr. Stephan was employed and the denominator of which is 365. In addition, 100% of the unvested shares subject to his stock option vest.

Dr. Stephan was also a party to a confidential information, invention assignment and arbitration agreement with Legacy NeuBase, pursuant to which Dr. Stephan has made confidentiality, assignment of intellectual property, non-solicitation and noncompetition covenants in favor of Legacy NeuBase. Any severance payments that become payable under his employment agreement are conditioned on his compliance with these covenants.

On July 11, 2019, we entered into an Offer of Employment with Dr. Stephan (the "Offer of Employment") that became effective upon the consummation of the Merger on July 12, 2019 and replaced the Stephan Employment Agreement. Pursuant to the Offer of Employment, Dr. Stephan will serve as the Company's President and Chief Executive Officer, his initial annualized salary will be $450,000 and he will be eligible to receive a discretionary annual performance bonus of up to 35% of his base salary. In addition, consistent with the obligations of Legacy NeuBase under the Stephan Employment Agreement, we paid Dr. Stephan the Bonus on July 19, 2019 pursuant to and after the completion of the Merger.

Dr. Stephan's employment with us is at-will, meaning either we or Dr. Stephan could terminate the employment relationship at any time, with or without cause. Pursuant to the Offer of Employment, if Dr. Stephan is terminated by us without cause, we will be obligated to pay to Dr. Stephan (i) severance at a rate equal to 100% of his base salary for a period of 12 months from the date of such termination and (ii) subject to the discretion of our board of directors, a prorated discretionary bonus for the year in which such termination occurs.

In addition, pursuant to the Offer of Employment, Dr. Stephan's confidential information, invention assignment and arbitration agreement with Legacy NeuBase shall continue to apply and was assumed by us.

On May 15, 2020, the Company awarded a discretionary cash bonus to Dr. Stephan in the amount of $157,500 for services rendered during the fiscal year ended September 30, 2019, which were not committed during such fiscal year and were approved by the Compensation Committee of the Board during May 2020.

Sam Backenroth

On January 6, 2015, Ohr amended its employment agreement with Sam Backenroth, Chief Financial Officer and Vice President, Business Development, to extend the term to February 28, 2016, and to provide for automatic one year extensions thereafter absent notice of termination. The employment agreement provided for an annual base salary of $200,000 for Mr. Backenroth.

Mr. Backenroth was entitled to (1) severance pay and benefits if his employment is terminated, whether at the end of the term of his employment agreement or termination without cause, equal to 50% of his base salary at the time of termination, or (2) alternatively, in the event of a change in control of Ohr, upon (i) his termination without cause, (ii) expiration of the term of his employment agreement, or (iii) as a result of a constructive termination (that is, his resignation because he has reasonably determined in good faith that his titles, authorities, responsibilities, salary, bonus opportunities or benefits have been materially diminished, that a material adverse change in his working conditions has occurred, that his services are no longer required in light of Ohr's business plan, or Ohr has breached his employment agreement) which occurs: (x) concurrently with the change in control, or (y) within 12 months of the change in control, he was entitled to receive (A) severance pay in an amount equal to $400,000, (B) the value of any accrued but unused vacation time, (C) the amount of all accrued but previously unpaid base salary through the date of termination, and (D) all of his then current employment benefits for the longer of twelve (12) months or the full un-expired term of his employment agreement. Mr. Backenroth had the right, for a period of 30 to 90 days following termination of his employment to exercise his Ohr options to the extent such options are otherwise vested and exercisable as of the date of termination. In connection with the Merger, Mr. Backenroth remained our Chief Financial Officer.

On May 22, 2019, Mr. Backenroth entered into a new employment offer letter to serve as our Chief Financial Officer effective upon the consummation of the Merger. Under the terms of the offer letter, which superseded Mr. Backenroth's prior employment agreement with us, Mr. Backenroth will receive a base salary of $320,000 per annum, a signing bonus of $95,000, and a stock option to purchase 772,923 shares of our common stock, allocated from our incentive option pool at an exercise price of $5.39 per share (the "Backenroth Option"), and also be eligible to receive a discretionary annual bonus of up to 35% of his base salary. We paid Mr. Backenroth the signing bonus on July 26, 2019.

Mr. Backenroth's employment with us is at-will, meaning either we or Mr. Backenroth could terminate the employment relationship at any time, with or without cause. If Mr. Backenroth is terminated by us without cause, we will be obligated to pay Mr. Backenroth (1) severance pay at a rate equal to one hundred percent (100%) of his base salary for a period of twelve (12) months from the date of termination, (2) subject to the discretion of our board of directors, a prorated discretionary annual bonus for the year in which the termination occurs. In the event of such termination, 100% of the total number of shares underlying the Backenroth Option shall vest.

On May 15, 2020, the Company awarded a cash bonus to Mr. Backenroth in the amount of $132,000 for services rendered during the fiscal year ended September 30, 2019, which were not committed during such fiscal year and were approved by the Compensation Committee of the Board during May 2020.

William Mann, Ph.D.

On July 22, 2020, the Company entered into an offer letter with Dr. Mann. Pursuant to his offer letter, Dr. Mann's annual salary will be $375,000, and he will have an annual performance bonus with a target of 40% of his base salary. Dr. Mann's employment will be on an "at will" basis. Additionally, the Company granted Dr. Mann an option to purchase 175,000 shares of the Company's common stock under the Company's 2019 Stock Incentive Plan. Subject to Dr. Mann's continued employment with the Company, 1/4th of the shares underlying his option to purchase common stock will vest on the first anniversary of Dr. Mann's start date, and 1/36th of the remaining shares underlying such option will vest at the end of each calendar month thereafter.

Dr. Mann's employment with us is at-will, meaning either we or Dr. Mann could terminate the employment relationship at any time, with or without cause. If Dr. Mann is terminated by us without cause or Dr. Mann resigns for good reason (defined generally as a reduction in his salary amongst similarly-situated employees, relocation, or a material diminution in title, duties or responsibilities), in either case, within six months following a change in control (as defined in the 2019 Plan), then, subject to execution and delivery of a general release of all claims, his then outstanding, unvested options, if any, will vest and be exercisable as to all of the covered shares. If Dr. Mann is terminated by us without cause (whether or not in connection with a change in control), we will be obligated to pay Dr. Mann (1) severance pay at a rate equal to one hundred percent (100%) of his base salary for a period of twelve (12) months from the date of termination, (2) reimbursement of 12 months of health benefits (COBRA subsidization) in accordance with the Company's standard expense reimbursement procedures and (3) subject to the discretion of our board of directors, a prorated portion of his annual bonus target for the year of termination.

Dr. Mann also entered into the Company's standard indemnification agreement and standard confidentiality and invention assignment agreement with the Company.

NeuBase Therapeutics Inc. 2019 Stock Incentive Plan

On March 6, 2019, our board of directors adopted the 2019 Plan to assist us in recruiting and retaining individuals with ability and initiative by enabling them to receive awards and participate in our future success by associating their interests with those of the Company and our stockholders. Our stockholders approved the plan on July 10, 2019. The 2019 Plan is intended to permit the grant of stock options (both incentive stock options ("ISOs") and non-qualified stock options ("NQSOs")), stock appreciation rights ("SARs"), restricted stock ("Restricted Stock Awards"), restricted stock units ("RSUs") and other incentive awards ("Incentive Awards").

The 2019 Plan became effective on the day prior to the closing date of the Merger. No awards may be granted after March 6, 2029, the date which is 10 years after the adoption of the 2019 Plan by our board of directors.

The following is only a summary of the material terms of the 2019 Plan, is not a complete description of all provisions of the 2019 Plan and should be read in conjunction with the 2019 Plan, which is incorporated by reference as an exhibit to this Form 10-K.

Administration. We bear all expenses of administering the 2019 Plan. The Compensation Committee administers the 2019 Plan. The Compensation Committee has the authority to grant awards to such persons and upon such terms and conditions (not inconsistent with the provisions of the 2019 Plan), as it may consider appropriate. The Compensation Committee may delegate to one or more of our officers all or part of its authority and duties with respect to awards to individuals who are not subject to Section 16 of the Exchange Act.

Eligibility for Participation. Any of our employees or service providers, including any employees or service providers of our affiliates, and any non-employee member of our board of directors or the boards of directors of our affiliates, is eligible to receive an award under the 2019 Plan. However, ISOs may only be granted to our employees or employees of our affiliates.

Shares Subject to Plan. The maximum number of shares of common stock that may be issued under the life of the 2019 Plan will be 3,100,000 shares, subject to an "evergreen" provision that will automatically increase the maximum number of shares of our common stock that may be issued under the life of the 2019 Plan on October 1st of each year beginning on October 1, 2019 and continuing through October 1, 2028 by a number of shares equal to 4.0% of the total number of shares of common stock outstanding as of September 30th of the preceding fiscal year, or a lesser number of shares to be determined by our board of directors. Notwithstanding the foregoing, the maximum number of shares of our common stock available for grants of ISOs under the 2019 Plan is 3,100,000 and will not increase.

A share of common stock issued in connection with any award under the 2019 Plan shall reduce the total number of shares of common stock available for issuance under the 2019 Plan by one; *provided*, *however*, that a share of our common stock covered under a stock-settled SAR shall reduce the total number of shares of common stock available for issuance under the 2019 Plan by one even though the shares of common stock are not actually issued in connection with settlement of the SAR. Except as otherwise provided in the 2019 Plan, any shares of common stock related to an award which terminates by expiration, forfeiture, cancellation or otherwise without issuance of shares of common stock, which is settled in cash in lieu of common stock or which is exchanged, with the Compensation Committee's permission, prior to the issuance of shares of common stock, for awards not involving shares of common stock, shall again be available for issuance under the 2019 Plan. The following shares of common stock, however, may not again be made available for issuance as awards under the 2019 Plan: (i) shares of common stock not issued or delivered as a result of a net settlement of an outstanding award, (ii) shares of common stock tendered or held to pay the exercise price, purchase price or withholding taxes relating to an outstanding award, or (iii) shares of common stock repurchased on the open market with the proceeds of the exercise price of an award.

In any calendar year, no participant may be granted options, SARs, Restricted Stock Awards, RSUs, or any combination thereof that relate to more than 1,000,000 shares of our common stock (subject to adjustment as provided in the 2019 Plan). In any calendar year, no participant may be granted an Incentive Award (i) with reference to a specified dollar limit for more than $3,000,000 and (ii) with reference to a specified number of shares of our common stock for more than 1,000,000 shares of our common stock (subject to adjustment as provided in the 2019 Plan). In any calendar year, no participant who is a member of our board of directors, but is not our employee of or an employee of our affiliate, may be granted options, SARs, Restricted Stock Awards, RSUs, or any combination thereof that relate to more than 300,000 shares of common stock (subject to adjustment as provided in the 2019 Plan). The maximum number of shares of our common stock that may be issued pursuant to awards, the per individual limits on awards and the terms of outstanding awards will be adjusted in a similar manner as the evergreen provisions that apply to the aggregate limits and as the Compensation Committee in its sole discretion determines is equitably required in the event of corporate transactions and other appropriate events.

Options. A stock option entitles the participant to purchase from us a stated number of shares of common stock. The Compensation Committee will determine whether the option is intended to be an ISO or a NQSO and specify the number of shares of common stock subject to the option. In the case of ISOs, the aggregate fair market value (determined as of the date of grant) of common stock with respect to which an ISO may become exercisable for the first time during any calendar year cannot exceed $100,000; and if this limitation is exceeded, the ISOs which cause the limitation to be exceeded will be treated as NQSOs. The exercise price per share of common stock may not be less than the fair market value of our common stock on the date the option is granted. With respect to an ISO granted to a participant who beneficially owns more than 10% of the combined voting power of the Company or any of our affiliates (determined by applying certain attribution rules), the exercise price per share may not be less than 110% of the fair market value of our common stock on the date the option is granted. The exercise price may be paid in cash or, if the agreement so provides, the Compensation Committee may allow a participant to pay all or part of the exercise price by tendering shares of our common stock the participant already owns, through a broker-assisted cashless exercise, by means of "net exercise" procedure, any other specified medium of payment or a combination.

Stock Appreciation Rights. A SAR entitles the participant to receive, upon exercise, the excess of the fair market value on that date of each share of common stock subject to the exercised portion of the SAR over the fair market value of each such share on the date of the grant of the SAR. A SAR can be granted alone or in tandem with an option. A SAR granted in tandem with an option is called a Corresponding SAR and entitles the participant to exercise the option or the SAR at which time the other tandem award expires. The Compensation Committee will specify the number of shares of common stock subject to a SAR and whether the SAR is a Corresponding SAR. No participant may be granted Corresponding SARs in tandem with ISOs which are first exercisable in any calendar year for shares of our common stock having an aggregate fair market value (determined as of the date of grant) that exceeds $100,000; and if this limitation is exceeded the tandem option will be treated as NQSOs. A Corresponding SAR may be exercised only to the extent that the related option is exercisable and the fair market value of our common stock on the date of exercise exceeds the exercise price of the related option. As set forth in the agreement, the amount payable as a result of the exercise of a SAR may be settled in cash, shares of common stock or a combination of each.

Restricted Stock Awards. A Restricted Stock Award is the grant or sale of shares of our common stock, which may be subject to forfeiture restrictions. The Compensation Committee will prescribe whether the Restricted Stock Award is forfeitable and the conditions to which it is subject. If the participant must pay for a Restricted Stock Award, payment for the award generally shall be made in cash or, if the agreement so provides, by surrendering shares of common stock the participant already owns or any other medium of payment. Prior to vesting or forfeiture, a participant will have all rights of a stockholder with respect to the shares of common stock underlying the Restricted Stock Award, including the right to receive dividends and vote the underlying shares of our common stock; provided, however, the participant may not transfer the shares. We may retain custody of the certificates evidencing the shares of our common stock until such shares are no longer forfeitable.

RSUs. An RSU entitles the participant to receive shares of common stock when certain conditions are met. The Compensation Committee will prescribe when the RSUs shall become payable. We will pay the participant one share of our common stock for each RSU that becomes earned and payable.

Incentive Awards. An Incentive Award entitles the participant to receive cash or common stock or a combination of each when certain conditions are met. The Compensation Committee will prescribe the terms and conditions of the Incentive Award. As set forth in the participant's agreement, an Incentive Award may be paid in cash, shares of common stock or a combination of each.

Change in Control. In the event of or in anticipation of a "Change in Control" (as defined in the 2019 Plan), the Compensation Committee in its discretion may terminate outstanding awards (i) by giving the participants an opportunity to exercise the awards that are then exercisable and then terminating, without any payment, all awards that have not been exercised (including those that were not then exercisable) or (ii) by paying the participant the value of the awards that are then vested, exercisable or payable without payment for any awards that are not then vested, exercisable or payable or that have no value. Alternatively, the Compensation Committee may take such other action as the Compensation Committee determines to be reasonable under the circumstances to permit the participant to realize the vested value of the award. The Compensation Committee may provide that a participant's outstanding awards become fully exercisable or payable on and after a Change in Control or immediately before the date the awards will be terminated in connection with a Change in Control. Awards will not be terminated to the extent they are to be continued after the Change in Control.

Stockholder Rights. No participant shall have any rights as a stockholder until the award is settled by the issuance of our common stock (other than a Restricted Stock Award or RSUs for which certain stockholder rights may be granted).

Transferability. An award is non-transferable except by will or the laws of descent and distribution, and during the lifetime of the participant to whom the award is granted, the award may only be exercised by, or payable to, the participant. The holder of the transferred award will be bound by the same terms and conditions that governed the award during the period that it was held by the participant.

Maximum Award Period. No award shall be exercisable or become vested or payable more than ten years after the date of grant. An ISO granted to a participant who beneficially owns more than 10% of the combined voting power of or any affiliate (determined by applying certain attribution rules) or a Corresponding SAR that relates to such an ISO may not be exercisable more than five years after the date of grant.

Compliance With Applicable Law. No award shall be exercisable, vested or payable except in compliance with all applicable federal and state laws and regulations (including, without limitation, tax and securities laws), any listing agreement with any stock exchange to which we are a party, and the rules of all domestic stock exchanges on which our securities may be listed.

Amendment and Termination of Plan. Our board of directors may amend or terminate the 2019 Plan at any time; provided, however, that no amendment may adversely impair the rights of a participant with respect to outstanding awards without the participant's consent. An amendment will be contingent on approval of our stockholders, to the extent required by law, by the rules of any stock exchange on which our securities are then traded or if the amendment would (i) increase the benefits accruing to participants under the 2019 Plan, including without limitation, any amendment to the 2019 Plan or any agreement to permit a repricing or decrease in the exercise price of any outstanding options or SARs, (ii) increase the aggregate number of shares of our common stock that may be issued under the 2019 Plan, or (iii) modify the requirements as to eligibility for participation in the 2019 Plan.

Forfeiture Provisions. Awards do not confer upon any individual any right to continue in the employ or service of the Company or any affiliate. All rights to any award that a participant has will be immediately forfeited if the participant is discharged from employment or service for "Cause" (as defined in the 2019 Plan).

Material U.S. Federal Income Tax Consequences

The following discussion summarizes the material United States federal income tax consequences associated with awards granted under the 2019 Plan to U.S. citizens. The discussion is based on laws, regulations, rulings and court decisions currently in effect, all of which are subject to change.

<u>ISOs</u>. A participant will not recognize taxable income on the grant or exercise of an ISO. A participant will recognize taxable income when he or she disposes of the shares of our common stock acquired under the ISO. If the disposition occurs more than two years after the grant of the ISO and more than one year after its exercise (the "ISO holding period"), the participant will recognize long-term capital gain (or loss) to the extent the amount realized from the disposition exceeds (or is less than) the participant's tax basis in the shares of our common stock. A participant's tax basis in shares of our common stock generally will be the amount the participant paid for the shares.

If our common stock acquired under an ISO is disposed of before the expiration of the ISO holding period described above, the participant will recognize as ordinary income in the year of the disposition the excess of the fair market value of our common stock on the date of exercise of the ISO over the exercise price. Any additional gain will be treated as long-term or short-term capital gain, depending on the length of time the participant held the shares. A special rule applies to such a disposition where the amount realized is less than the fair market value of our common stock on the date of exercise of the ISO. In that case, the ordinary income the participant will recognize will not exceed the excess of the amount realized on the disposition over the exercise price. If the amount realized is less than the exercise price, the participant will recognize a capital loss (long-term if the stock was held more than one year and short-term if held one year or less). A participant will receive different tax treatment if the exercise price is paid by delivery of common stock the participant already owns.

Neither us nor any of our affiliates will be entitled to a federal income tax deduction with respect to the grant or exercise of an ISO. However, in the event a participant disposes of our common stock acquired under an ISO before the expiration of the ISO holding period described above, we or our affiliate will be entitled to a federal income tax deduction equal to the amount of ordinary income the participant recognizes.

<u>NQSOs</u>. A participant will not recognize any taxable income on the grant of a NQSO. On the exercise of a NQSO, the participant will recognize as ordinary income the excess of the fair market value of the common stock acquired over the exercise price. A participant's tax basis in our common stock is the amount paid plus any amounts included in income on exercise. The participant's holding period for the stock begins on acquisition of the shares. Any gain or loss that a participant realizes on a subsequent disposition of our common stock acquired on the exercise of a NQSO generally will be treated as long-term or short-term capital gain or loss, depending on the length of time the participant held such shares. The amount of the gain (or loss) will equal the amount by which the amount realized on the subsequent disposition exceeds (or is less than) the participant's tax basis in his or her shares. A participant will receive different tax treatment if the exercise price is paid by delivery of common stock the participant already owns.

The exercise of a NQSO will entitle us or our affiliate to claim a federal income tax deduction equal to the amount of ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

<u>SARs</u>. A participant will not recognize any taxable income at the time the SARs are granted. The participant at the time of receipt will recognize as ordinary income the amount of cash and the fair market value of our common stock that he or she receives. We or our affiliate will be entitled to a federal income tax deduction equal to the amount of ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

<u>Restricted Stock Awards</u>. A participant will recognize ordinary income on account of a Restricted Stock Award on the first day that the shares are either transferable or not subject to a substantial risk of forfeiture. The ordinary income recognized will equal the excess of the fair market value of our common stock on such date over the amount, if any, the participant paid for the Restricted Stock Award. However, even if the shares under a Restricted Stock Award are both nontransferable and subject to a substantial risk of forfeiture, the participant may make a special "83(b) election" within 30 days of the grant date to recognize income, and have his or her tax consequences determined, as of the date the Restricted Stock Award is made. The participant's tax basis in the shares received will equal the income recognized plus the price, if any, paid for the Restricted Stock Award. Any gain (or loss) that a participant realizes upon the sale of any of our common stock acquired pursuant to a Restricted Stock Award will be equal to the amount by which the amount realized on the disposition exceeds (or is less than) the participant's tax basis in the shares and will be treated as long-term (if the shares are held for more than one year) or short-term (if the shares are held for one year or less) capital gain or loss. The participant's holding period for the stock begins on the date the shares are either transferable or not subject to a substantial risk of forfeiture, except that the holding period will begin on the date of grant if the participant makes the special "83(b) election."

We or our affiliate will be entitled to a federal income tax deduction equal to the ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

RSUs. The participant will not recognize any taxable income at the time the RSUs are granted. When the terms and conditions to which the RSUs are subject have been satisfied and the RSUs are paid, the participant, at the time of receipt, will recognize as ordinary income the fair market value of our common stock he or she receives. The participant's holding period in our common stock will begin on the date the stock is received. The participant's tax basis in our common stock will equal the amount he or she includes in ordinary income. Any gain or loss that a participant realizes on a subsequent disposition of the shares will be treated as long-term or short-term capital gain or loss, depending on the participant's holding period for the stock (long-term if the shares are held for more than one year; short-term if one year or less). The amount of the gain (or loss) will equal the amount by which the amount realized on the disposition exceeds (or is less than) the participant's tax basis in the common stock. We or our affiliate will be entitled to a federal income tax deduction equal to the ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

Incentive Awards. A participant will not recognize any taxable income at the time an Incentive Award is granted. When the terms and conditions to which an Incentive Award is subject have been satisfied and the award is paid, the participant, at the time of receipt, will recognize as ordinary income the amount of cash and the fair market value of the common stock he or she receives. The participant's holding period in any of our common stock received will begin on the date of receipt. The participant's tax basis in our common stock will equal the amount he or she includes in ordinary income with respect to such shares. Any gain or loss that a participant realizes on a subsequent disposition of our common stock will be treated as long-term or short-term capital gain or loss, depending on the participant's holding period for the common stock (long-term if the shares are held for more than one year; short-term if one year or less). The amount of the gain (or loss) will equal the amount by which the amount realized on the disposition exceeds (or is less than) the participant's tax basis in our common stock. We or our affiliate will be entitled to a federal income tax deduction equal to the amount of ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

Limitation on Deductions. The deduction for a publicly-held corporation for otherwise deductible compensation to a "covered employee" generally is limited to $1 million per year. An individual is a covered employee if he or she is the chief executive officer, chief financial officer, or one of the other three highest compensated officers for the year (other than the chief executive officer or chief financial officer) or ever was a covered employee after December 31, 2016.

Any grant, exercise, vesting or payment of an award may be postponed if we reasonably believes that our or any applicable affiliate's deduction with respect to such award would be limited or eliminated by application of Code Section 162(m) to the extent permitted by Section 409A of the Code; *provided*, *however*, such delay will last only until the earliest date at which we reasonably anticipates the deduction will not be limited or eliminated under Code Section 162(m).

Other Tax Rules. The 2019 Plan is designed to enable the Compensation Committee to structure awards that are intended to not be subject to Code Section 409A, which imposes certain restrictions and requirements on deferred compensation.

NeuBase Therapeutics, Inc. 2018 Equity Incentive Plan

On August 28, 2018, the board of directors of Legacy NeuBase adopted the 2018 Plan, and the Legacy NeuBase stockholders also approved the 2018 Plan on August 28, 2018. Pursuant to the Merger Agreement, at the effective time of the Merger, each outstanding and unexercised option to purchase shares of Legacy NeuBase common stock issued under the 2018 Plan was assumed by us, and became an option to purchase that number of shares of our common stock equal to the product obtained by multiplying (i) the number of shares of Legacy NeuBase common stock that were subject to such option immediately prior to the effective time of the Merger by (ii) the exchange ratio, rounded down to the nearest whole share. The per share exercise price for shares of our common stock issuable upon exercise of each Legacy NeuBase option assumed by us was determined by dividing (a) the per share exercise price of Legacy NeuBase common stock subject to such Legacy NeuBase option, as in effect immediately prior to the effective time of the Merger, by (b) the exchange ratio, rounded up to the nearest whole cent. No new equity awards will be issued under the 2018 Plan. However, the 2018 Plan will continue to govern outstanding awards granted thereunder.

The following is only a summary of the material terms of the 2018 Plan, is not a complete description of all provisions of the 2018 Plan and should be read in conjunction with the 2018 Plan, which is filed as an exhibit to this Form 10-K.

Stock Options and Stock Appreciation Rights. The exercise price of stock options and strike price of stock appreciation rights granted under the 2018 Plan must not be less than 100% of the fair market value of our common stock on the grant date, subject to certain exceptions as set forth in the 2018 Plan. The term of a stock option or stock appreciation rights may not exceed ten years. An ISO may only be granted to our employees or employees of certain of our affiliates, including officers who are employees. An ISO granted to an employee who owns more than 10% of the combined voting power of all of our classes of stock or that of our affiliates must have an exercise price of at least 110% of the fair market value of our common stock on the grant date, and the term of the ISO may not exceed five years from the grant date. To the extent that the aggregate fair market value of shares of our common stock with respect to which ISOs first become exercisable by a participant in any calendar year exceeds $100,000, such excess stock options will be treated as Non-ISOs. The methods of payment of the exercise price of a stock option may include, among other things, cash, other shares (subject to certain conditions), "net exercise" (for Non-ISOs), cashless exercise, deferred payment or similar arrangements, as well as other forms of legal consideration that may be acceptable to our board of directors and specified in the applicable stock option award agreement. To exercise any outstanding stock appreciation right, the participant must provide written notice of exercise to us. The appreciation distribution payable on the exercise of a stock appreciation right may be paid in our common stock, cash, a combination of our common stock and cash or in any other form of consideration determined by our board of directors and contained in the award agreement. Our board of directors may establish and set forth in the applicable stock option award agreement or other agreement the terms and conditions on which a stock option or stock appreciation right will remain exercisable, if at all, following termination of a participant's service. Unless an award agreement provides otherwise: (1) if termination is due to death, the stock option or stock appreciation right will remain exercisable for six months after such termination of service; (2) if termination is due to disability, the stock option or stock appreciation right will remain exercisable for six months after such termination of service; and (3) if the termination is due to reasons other than for death or disability, the stock option or stock appreciation right generally will remain exercisable for thirty days following termination of service. If a participant is not entitled to exercise a stock option or stock appreciation right at the date of termination of service, or if the participant does not exercise the stock option or stock appreciation right to the extent so entitled within the time specified in the applicable stock option award agreement or other agreement or in the 2018 Plan, the stock option or stock appreciation right will terminate.

Restricted Stock Awards. Each restricted stock award agreement will be in the form and contain such terms and conditions as our board of directors deems appropriate. At our board of directors' election, shares of our common stock may be (1) held in book entry form until any restrictions relating to the restricted stock award lapse or (2) evidenced by a certificate that is held in a form and manner determined by our board of directors. The methods of payment of consideration for a restricted stock award may include any form of legal consideration that may be acceptable to our board of directors and permissible under applicable law including the provision of services. Shares of our common stock awarded under a restricted stock award agreement may be subject to forfeiture in accordance with a vesting schedule. Following termination of a participant's service, we may receive through a forfeiture condition or repurchase right, any or all of the shares of our common stock held by the participant as of the date of termination under the terms of the restricted stock award agreement. Dividends paid on restricted common stock may be subject to the same vesting and forfeiture restrictions that apply to the shares of our common stock under the restricted stock award.

Restricted Stock Unit Awards. Each restricted stock unit award agreement will be in the form and contain such terms and conditions as our board of directors deems appropriate. Payment for each share of our common stock subject to a restricted stock unit award may be in any form of legal consideration that may be acceptable to our board of directors and permissible under applicable law including the provision of services. Our board of directors may, in its sole discretion, impose restrictions on or conditions to the vesting of a restricted stock unit award. Each restricted stock unit award may be settled by delivery of our common stock, the cash value of our common stock, a combination of our common stock and cash or in any other form of consideration determined by our board of directors and contained in the award agreement. Our board of directors may, at the time of grant, impose restrictions or conditions on a restricted stock unit award that delay the delivery of our common stock subject to such restricted stock unit award to a time after such restricted stock unit award vests. Unless an award agreement provides otherwise, any unvested portion of a restricted stock unit award will be forfeited upon a participant's termination of service.

Taxes. Prior to the delivery of cash or shares in settlement or exercise of any award, we may withhold and/or require the holder to remit to us amount sufficient to satisfy all taxes required to be withheld under applicable laws.

Non-Transferability. Unless our board of directors provides otherwise in an award agreement, or unless transferred pursuant to a will or by the laws of descent and distribution, the 2018 Plan generally does not allow for the transfer of awards and only the participant who is granted an award may exercise an award during his or her lifetime.

Certain Adjustments. In the event of certain changes in our capitalization, such as any dividend or other distribution (whether in the form of cash, our common stock, other securities or other property), stock splits, reverse stock splits, combinations, recapitalizations or reorganizations with respect to our common stock, or mergers, consolidations, changes in organization form or other increases or decreases in the number of issued shares of our common stock effected without receipt or payment of consideration by us, our board of directors will proportionally adjust the number and price of shares covered by each outstanding award and the total number of shares authorized for issuance under the 2018 Plan. Unless our board of directors provides otherwise in an award agreement, in the event of any proposed dissolution or liquidation of us, other than as part of a corporate transaction, we will notify each participant as soon as practicable and all awards will terminate immediately prior to the consummation of such proposed corporate transaction.

Corporate Transaction. In the event of a corporate transaction involving us, our board of directors has the discretion to take one or more of the following actions with respect to any or all awards: (1) arrange for the surviving company or acquiring company to assume or continue the stock awards or substitute a substantially equivalent stock award; (2) upon to notice to the holder, provide for the termination of such holder's awards upon or immediately prior to the transaction; (3) accelerate the vesting, in whole or in part, of the stock awards (and, if applicable, the time at which the stock awards may be exercised) to a date prior to the effective time of such corporate transaction as our board of directors will determine at or prior to the effective time of the corporate transaction; (4) arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by us with respect to the stock awards; (5) cancel or arrange for the cancellation of the stock award in exchange for a payment cash and/or property equal to the excess, if any, of (A) the amount the participant would have received upon the exercise or settlement of the stock award immediately prior to the effective time of the corporate transaction, over (B) any exercise or strike price payable by such holder in connection with such exercise (and if as of the date of the occurrence of the corporate transaction our board of directors determines in good faith that no amount would have been attained upon the exercise or settlement of such award, then such award may be terminated without payment); (6) the replacement of such award with other rights or property selected by our board of directors in its sole discretion; or (7) any combination of the above. Our board of directors is not required to take the same action or actions with respect to all awards granted under the 2018 Plan, or portions thereof, or with respect to all participants, and may take any of the different actions described above with respect to the vested and unvested portions of any award. In the event that a successor corporation does not assume or substitute for the award, the award shall become fully vested (with any performance-based vesting deemed attained at 100% of target levels and other terms and conditions met). A corporate transaction means, (i) a merger, following which we are not the surviving company, (ii) any one person or more than one person acting as group acquires ownership of our stock that, together with any stock held by such person(s), constitutes more than 50% of the voting power of our stock, except that any change in the ownership of our stock as a result of a private financing that is approved by our board of directors; (iii) if we have a class of securities registered pursuant to Section 12 of the Exchange Act, a majority of members of our board of directors is replaced during any twelve month period by directors who appointment or election is not endorsed by a majority of members of our board of directors prior to the date of appointment or election; or (iv) any person acquires within any twelve month period our assets having a total gross fair market value of at least 50% of the total fair market value of our assets.

Amendment; Termination. The 2018 Plan may be amended or terminated by our board of directors as it deems advisable; however, stockholder approval is required for any change that that (1) materially increases the number of shares of our common stock available for issuance under the 2018 Plan, or (2) materially expands the class of individuals eligible to receive awards under the 2018 Plan. The 2018 Plan will terminate on July 8, 2026, if not sooner terminated by NeuBase's board of directors.

Ohr Pharmaceutical, Inc. 2016 Consolidated Stock Incentive Plan

On January 7, 2016, our board of directors adopted the 2016 Plan and our shareholders approved the plan on March 17, 2016 to assist us in recruiting and retaining individuals with ability and initiative by enabling them to receive awards and participate in our future success by associating their interests with those of us and our stockholders. The 2016 Plan is intended to permit the grant of stock options (both ISOs and NQSOs), SARs, Restricted Stock Awards, RSUs and Incentive Awards. The following is only a summary of the material terms of the 2016 Plan, is not a complete description of all provisions of the 2016 Plan and should be read in conjunction with the 2016 Plan, which is filed as an exhibit to this Form 10-K.

Prior Plans. We previously maintained each of the 2014 Plan and the 2009 Plan. The 2016 Plan is intended to consolidate the 2014 Plan and the 2009 Plan into a new plan, with an aggregate number of shares available for issuance under the 2016 Plan as set forth below under "- Shares Subject to Plan." For options and Restricted Stock Awards granted under the 2014 Plan and the 2009 Plan prior to January 7, 2016, the terms and conditions of the 2014 Plan and the 2009 Plan and the applicable award agreements will control, except that our Compensation Committee, in its discretion may allow a participant to pay all or part of the option price (i) by surrendering shares of common stock to us that the participant already owns and, if necessary to avoid adverse accounting consequences, has held for at least six months; (ii) by a cashless exercise through a broker; (iii) by means of a "net exercise" procedure, (iv) by such other medium of payment as the Compensation Committee in its discretion shall authorize or (v) by any combination of the aforementioned methods of payment. If shares of common stock are used to pay all or part of the option price, the sum of the cash and cash equivalent and the fair market value (determined as of the day preceding the date of exercise) of the shares surrendered shall equal the option price of the shares for which the option is being exercised.

Written Agreements. All awards granted under the 2016 Plan will be governed by separate written agreements between us and the participants. The written agreements will specify when the award may become vested, exercisable or payable, as well as other terms and conditions that may apply to the award. No right or interest of a participant in any award will be subject to any lien, obligation or liability of the participant. The laws of the State of Delaware govern the 2016 Plan.

No awards may be granted after January 7, 2026, the date which is 10 years after the adoption of the 2016 Plan by the board of directors.

Tax Treatment. It is intended that awards granted under the 2016 Plan shall be exempt from treatment as "deferred compensation" subject to Section 409A of the Internal

Revenue Code of 1986 (and any amendments thereto) (the “Code”).

Administration. We bear all expenses of administering the 2016 Plan. The Compensation Committee administers the 2016 Plan. The Compensation Committee has the authority to grant awards to such persons and upon such terms and conditions (not inconsistent with the provisions of the 2016 Plan), as it may consider appropriate. The Compensation Committee may delegate to one or more of our officers all or part of its authority and duties with respect to awards to individuals who are not subject to Section 16 of the Exchange Act.

Eligibility for Participation. Any of our employees or service providers, including any employees or service providers of our affiliates, and any non-employee member of our board of directors or the boards of directors of our affiliates, is eligible to receive an award under the 2016 Plan. However, ISOs may only be granted to our employees or employees of our affiliates.

Shares Subject to Plan. The maximum number of shares of our common stock that may be issued under the life of the 2016 Plan pursuant to awards will be (a) 291,667 shares minus (b) the number of shares of our common stock that previously have been issued pursuant to the exercise of options under the 2009 Plan or 2014 Plan or the number of shares of restricted stock granted under the 2014 Plan and the 2009 Plan that, as of December 28, 2018 are no longer subject to a substantial risk of forfeiture. One hundred percent (100%) of such shares may be issued pursuant to options (including ISOs), SARs, Restricted Stock Awards, RSUs or Incentive Awards or any combination of awards. Of the 291,667 shares, 16,667 previously were authorized under the 2009 Plan and 137,500 previously were authorized under the 2014 Plan.

Shares of common stock covered by an award shall only be counted as issued to the extent they are actually issued. A share of common stock issued in connection with any award under the 2016 Plan shall reduce the total number of shares of our common stock available for issuance under the 2016 Plan by one; provided, however, that a share of our common stock covered under a stock-settled SAR shall reduce the total number of shares of common stock available for issuance under the 2016 Plan by one even though the shares of common stock are not actually issued in connection with settlement of the SAR. Except as otherwise provided in the 2016 Plan, any shares of common stock related to an award which terminates by expiration, forfeiture, cancellation or otherwise without issuance of shares of common stock, which is settled in cash in lieu of common stock or which is exchanged, with the Compensation Committee’s permission, prior to the issuance of shares of common stock, for awards not involving shares of common stock, shall again be available for issuance under the 2016 Plan. The following shares of common stock, however, may not again be made available for issuance as awards under the 2016 Plan: (i) shares of common stock not issued or delivered as a result of a net settlement of an outstanding award, (ii) shares of common stock tendered or held to pay the exercise price, purchase price or withholding taxes relating to an outstanding award, or (iii) shares of common stock repurchased on the open market with the proceeds of the exercise price of an award.

In any calendar year, no participant may be granted options, SARs, Restricted Stock Awards, RSUs, or any combination thereof that relate to more than 500,000 shares of our common stock (subject to adjustment as provided in the 2016 Plan). In any calendar year, no participant may be granted an Incentive Award (i) with reference to a specified dollar limit for more than $3,000,000 million and (ii) with reference to a specified number of shares of common stock for more than 500,000 shares of common stock (subject to adjustment as provided in the 2016 Plan). The maximum number of shares of our common stock that may be issued pursuant to awards, the per individual limits on awards and the terms of outstanding awards will be adjusted as the Compensation Committee in its sole discretion determines is equitably required in the event of corporate transactions and other appropriate events.

Options. A stock option entitles the participant to purchase from us a stated number of shares of common stock. The Compensation Committee will determine whether the option is intended to be an ISO or a NQSO and specify the number of shares of common stock subject to the option. In the case of ISOs, the aggregate fair market value (determined as of the date of grant) of common stock with respect to which an ISO may become exercisable for the first time during any calendar year cannot exceed $100,000; and if this limitation is exceeded, the ISOs which cause the limitation to be exceeded will be treated as NQSOs. The exercise price per share of common stock may not be less than the fair market value of our common stock on the date the option is granted. With respect to an ISO granted to a participant who beneficially owns more than 10% of the combined voting power of the Company or any of our affiliate (determined by applying certain attribution rules), the exercise price per share may not be less than 110% of the fair market value of our common stock on the date the option is granted. The exercise price may be paid in cash or, if the agreement so provides, the Compensation Committee may allow a participant to pay all or part of the exercise price by tendering shares of our common stock the participant already owns, through a broker-assisted cashless exercise, by means of “net exercise” procedure, any other specified medium of payment or a combination.

Stock Appreciation Rights. A SAR entitles the participant to receive, upon exercise, the excess of the fair market value on that date of each share of common stock subject to the exercised portion of the SAR over the fair market value of each such share on the date of the grant of the SAR. A SAR can be granted alone or in tandem with an option. A SAR granted in tandem with an option is called a Corresponding SAR and entitles the participant to exercise the option or the SAR at which time the other tandem award expires. The Compensation Committee will specify the number of shares of common stock subject to a SAR and whether the SAR is a Corresponding SAR. No participant may be granted Corresponding SARs in tandem with ISOs which are first exercisable in any calendar year for shares of common stock having an aggregate fair market value (determined as of the date of grant) that exceeds $100,000; and if this limitation is exceeded the tandem option will be treated as NQSOs. A Corresponding SAR may be exercised only to the extent that the related option is exercisable and the fair market value of the common stock on the date of exercise exceeds the exercise price of the related option. As set forth in the agreement, the amount payable as a result of the exercise of a SAR may be settled in cash, shares of common stock or a combination of each.

Restricted Stock Awards. A Restricted Stock Award is the grant or sale of shares of our common stock, which may be subject to forfeiture restrictions. The Compensation Committee will prescribe whether the Restricted Stock Award is forfeitable and the conditions to which it is subject. If the participant must pay for a Restricted Stock Award, payment for the award generally shall be made in cash or, if the agreement so provides, by surrendering shares of common stock the participant already owns or any other medium of payment. Prior to vesting or forfeiture, a participant will have all rights of a shareholder with respect to the shares underlying the Restricted Stock Award, including the right to receive dividends and vote the underlying shares; provided, however, the participant may not transfer the shares. We may retain custody of the certificates evidencing the shares or our common stock until such shares are no longer forfeitable.

RSUs. An RSU entitles the participant to receive shares of common stock when certain conditions are met. The Compensation Committee will prescribe when the RSUs shall become payable. We will pay the participant one share of our common stock for each RSU that becomes earned and payable.

Incentive Awards. An Incentive Award entitles the participant to receive cash or common stock or a combination of each when certain conditions are met. The Compensation Committee will prescribe the terms and conditions of the Incentive Award. As set forth in the participant’s agreement, an Incentive Award may be paid in cash, shares of common stock or a combination of each.

Performance Objectives. The Compensation Committee has discretion to establish objectively-determinable performance conditions for when awards will become vested, exercisable and payable. Objectively-determinable performance conditions are performance conditions (i) that are established in writing (a) at the time of grant (b) no later than the earlier of (x) 90 days after the beginning of the period of service to which they relate and (y) before the lapse of 25% of the period of service to which they relate; (ii) that are uncertain of achievement at the time they are established; and (iii) the achievement of which is determinable by a third party with knowledge of the relevant facts. These performance conditions may include any or any combination of the following: (a) gross, operating or net earnings before or after taxes; (b) return on equity; (c) return on capital;

(d) return on sales; (e) return on investments; (f) return on assets or net assets; (g) earnings per share; (h) cash flow per share; (i) book value per share; (j) gross margin; (k) customers; (l) cash flow or cash flow from operations; (m) fair market value of us or any affiliate or shares of Common Stock; (n) share price or total shareholder return; (o) market share; (p) level of expenses or other costs; (q) gross, operating or net revenue; (r) earnings before interest and taxes; (s) adjusted earnings before interest and taxes; (t) profitability; (u) earnings before interest, taxes, depreciation and amortization; (v) adjusted earnings before interest, taxes, depreciation and amortization; (w) adjusted earnings before interest, taxes, depreciation and amortization less capital expenditures; (x) research and development milestones; (y) business development objectives, partnerships and other collaborations; or (z) peer group comparisons of any of the aforementioned performance conditions. Performance conditions may be related to a specific customer or group of customers or geographic region. The form of the performance conditions also may be measured on a Company, affiliate, division, business unit, service line, segment or geographic basis or a combination thereof. Performance goals may reflect absolute entity performance or a relative comparison of entity performance to the performance of a peer group of entities or other external measure of the selected performance conditions. Profits, earnings and revenues used for any performance condition measurement may exclude any extraordinary or nonrecurring items. The performance conditions may, but need not, be based upon an increase or positive result under the aforementioned performance criteria and could include, for example and not by way of limitation, maintaining the status quo or limiting the economic losses (measured, in each case, by reference to the specific business criteria). An award that is intended to become exercisable, vested or payable on the achievement of performance conditions means that the award will not become exercisable, vested or payable solely on mere continued employment or service. However, such an award, in addition to performance conditions, may be subject to continued employment or service by the participant. Additionally, the vesting, exercise or payment of an award can be conditioned on mere continued employment or service if it is not intended to qualify as qualified performance-based compensation under Section 162(m) of the Code.

Change in Control. In the event of or in anticipation of a "Change in Control" (as defined in the 2016 Plan), the Compensation Committee in its discretion may terminate outstanding awards (i) by giving the participants an opportunity to exercise the awards that are then exercisable and then terminating, without any payment, all awards that have not been exercised (including those that were not then exercisable) or (ii) by paying the participant the value of the awards that are then vested, exercisable or payable without payment for any awards that are not then vested, exercisable or payable or that have no value. Alternatively, the Compensation Committee may take such other action as the Compensation Committee determines to be reasonable under the circumstances to permit the participant to realize the vested value of the award. The Compensation Committee may provide that a participant's outstanding awards become fully exercisable or payable on and after a Change in Control or immediately before the date the awards will be terminated in connection with a Change in Control. Awards will not be terminated to the extent they are to be continued after the Change in Control.

Stockholder Rights. No participant shall have any rights as a shareholder of us until the award is settled by the issuance of our common stock (other than a Restricted Stock Award or RSUs for which certain shareholder rights may be granted).

Transferability. An award is non-transferable except by will or the laws of descent and distribution, and during the lifetime of the participant to whom the award is granted, the award may only be exercised by, or payable to, the participant. The holder of the transferred award will be bound by the same terms and conditions that governed the award during the period that it was held by the participant.

Maximum Award Period. No award shall be exercisable or become vested or payable more than ten years after the date of grant. An ISO granted to a participant who beneficially owns more than 10% of the combined voting power of us or any affiliate (determined by applying certain attribution rules) or a Corresponding SAR that relates to such an ISO may not be exercisable more than five years after the date of grant.

Compliance With Applicable Law. No award shall be exercisable, vested or payable except in compliance with all applicable federal and state laws and regulations (including, without limitation, tax and securities laws), any listing agreement with any stock exchange to which we are a party, and the rules of all domestic stock exchanges on which our shares may be listed.

Amendment and Termination of Plan. Our board of directors may amend or terminate the 2016 Plan at any time; provided, however, that no amendment may adversely impair the rights of a participant with respect to outstanding awards without the participant's consent. An amendment will be contingent on approval of our shareholders, to the extent required by law, by the rules of any stock exchange on which our securities are then traded or if the amendment would (i) increase the benefits accruing to participants under the 2016 Plan, including without limitation, any amendment to the 2016 Plan or any agreement to permit a repricing or decrease in the exercise price of any outstanding options or SARs, (ii) increase the aggregate number of shares of our common stock that may be issued under the 2016 Plan, (iii) modify the requirements as to eligibility for participation in the 2016 Plan or (iv) change the stated performance conditions for qualified performance-based compensation under Section 162(m) of the Code. Additionally, to the extent the board of directors deems necessary for the 2016 Plan to continue to grant awards that are intended to comply with the performance-based exception to the deduction limits of Code Section 162(m), the board of directors will submit the material terms of the stated performance conditions to our shareholders for approval no later than the first shareholder meeting that occurs in the fifth year following the year in which the shareholders previously approved the material terms of the performance goals.

Notwithstanding any other provision of the 2016 Plan, the Compensation Committee may amend any outstanding award without participant's consent if, as determined by the Compensation Committee in its sole discretion, such amendment is required either to (i) confirm exemption from Section 409A of the Code, (ii) comply with Section 409A of the Code or (iii) prevent the Participant from being subject to any tax or penalty under Section 409A of the Code.

Forfeiture Provisions. Awards do not confer upon any individual any right to continue in the employ or service of us or any affiliate. All rights to any award that a participant has will be immediately forfeited if the participant is discharged from employment or service for "Cause" (as defined in the 2016 Plan).

Material U.S. Federal Income Tax Consequences

The following discussion summarizes the material United States federal income tax consequences associated with awards granted under the 2016 Plan to U.S. citizens. The discussion is based on laws, regulations, rulings and court decisions currently in effect, all of which are subject to change.

ISOs. A participant will not recognize taxable income on the grant or exercise of an ISO. A participant will recognize taxable income when he or she disposes of the shares of our common stock acquired under the ISO. If the disposition occurs after the ISO holding period, the participant will recognize long-term capital gain (or loss) to the extent the amount realized from the disposition exceeds (or is less than) the participant's tax basis in the shares of our common stock. A participant's tax basis in shares of our common stock generally will be the amount the participant paid for the shares.

If our common stock acquired under an ISO is disposed of before the expiration of the ISO holding period described above, the participant will recognize as ordinary income in the year of the disposition the excess of the fair market value of our common stock on the date of exercise of the ISO over the exercise price. Any additional gain will be treated as long-term or short-term capital gain, depending on the length of time the participant held the shares. A special rule applies to such a disposition where the amount realized is less than the fair market value of our common stock on the date of exercise of the ISO. In that case, the ordinary income the participant will recognize will not exceed the excess of the amount realized on the disposition over the exercise price. If the amount realized is less than the exercise price, the participant will recognize a capital loss (long-term if the stock was held more than one year and short-term if held one year or less). A participant will receive different tax treatment if the exercise price is paid by delivery of our common stock the participant already owns.

Neither us nor any of our affiliates will be entitled to a federal income tax deduction with respect to the grant or exercise of an ISO. However, in the event a participant disposes of our common stock acquired under an ISO before the expiration of the ISO holding period described above, we or our affiliate will be entitled to a federal income tax deduction equal to the amount of ordinary income the participant recognizes.

NQSOs. A participant will not recognize any taxable income on the grant of a NQSO. On the exercise of a NQSO, the participant will recognize as ordinary income the excess of the fair market value of our common stock acquired over the exercise price. A participant's tax basis in our common stock is the amount paid plus any amounts included in income on exercise. The participant's holding period for the stock begins on acquisition of the shares. Any gain or loss that a participant realizes on a subsequent disposition of our common stock acquired on the exercise of a NQSO generally will be treated as long-term or short-term capital gain or loss, depending on the length of time the participant held such shares. The amount of the gain (or loss) will equal the amount by which the amount realized on the subsequent disposition exceeds (or is less than) the participant's tax basis in his or her shares. A participant will receive different tax treatment if the exercise price is paid by delivery of our common stock the participant already owns.

The exercise of a NQSO will entitle us or our affiliate to claim a federal income tax deduction equal to the amount of ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

SARs. A participant will not recognize any taxable income at the time the SARs are granted. The participant at the time of receipt will recognize as ordinary income the amount of cash and the fair market value of our common stock that he or she receives. We or our affiliate will be entitled to a federal income tax deduction equal to the amount of ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

Restricted Stock Awards. A participant will recognize ordinary income on account of a Restricted Stock Award on the first day that the shares are either transferable or not subject to a substantial risk of forfeiture. The ordinary income recognized will equal the excess of the fair market value of our common stock on such date over the amount, if any, the participant paid for the Restricted Stock Award. However, even if the shares under a Restricted Stock Award are both nontransferable and subject to a substantial risk of forfeiture, the participant may make a special "83(b) election" within 30 days of the grant date to recognize income, and have his or her tax consequences determined, as of the date the Restricted Stock Award is made. The participant's tax basis in the shares received will equal the income recognized plus the price, if any, paid for the Restricted Stock Award. Any gain (or loss) that a participant realizes upon the sale of any common stock acquired pursuant to a Restricted Stock Award will be equal to the amount by which the amount realized on the disposition exceeds (or is less than) the participant's tax basis in the shares and will be treated as long-term (if the shares are held for more than one year) or short-term (if the shares are held for one year or less) capital gain or loss. The participant's holding period for the stock begins on the date the shares are either transferable or not subject to a substantial risk of forfeiture, except that the holding period will begin on the date of grant if the participant makes the special "83(b) election." We or our affiliate will be entitled to a federal income tax deduction equal to the ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

RSUs. The participant will not recognize any taxable income at the time the RSUs are granted. When the terms and conditions to which the RSUs are subject have been satisfied and the RSUs are paid, the participant, at the time of receipt, will recognize as ordinary income the fair market value of our common stock he or she receives. The participant's holding period in our common stock will begin on the date the stock is received. The participant's tax basis in the common stock will equal the amount he or she includes in ordinary income. Any gain or loss that a participant realizes on a subsequent disposition of the shares will be treated as long-term or short-term capital gain or loss, depending on the participant's holding period for the stock (long-term if the shares are held for more than one year; short-term if one year or less). The amount of the gain (or loss) will equal the amount by which the amount realized on the disposition exceeds (or is less than) the participant's tax basis in our common stock. We or our affiliate will be entitled to a federal income tax deduction equal to the ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

Incentive Awards. A participant will not recognize any taxable income at the time an Incentive Award is granted. When the terms and conditions to which an Incentive Award is subject have been satisfied and the award is paid, the participant, at the time of receipt, will recognize as ordinary income the amount of cash and the fair market value of our common stock he or she receives. The participant's holding period in any of our common stock received will begin on the date of receipt. The participant's tax basis in our common stock will equal the amount he or she includes in ordinary income with respect to such shares. Any gain or loss that a participant realizes on a subsequent disposition of our common stock will be treated as long-term or short-term capital gain or loss, depending on the participant's holding period for our common stock (long-term if the shares are held for more than one year; short-term if one year or less). The amount of the gain (or loss) will equal the amount by which the amount realized on the disposition exceeds (or is less than) the participant's tax basis in our common stock. We or our affiliate will be entitled to a federal income tax deduction equal to the amount of ordinary income the participant recognizes. If the participant is an employee, that ordinary income will constitute wages subject to withholding and employment taxes.

Limitation on Deductions. The deduction for a publicly-held corporation for otherwise deductible compensation to a "covered employee" generally is limited to $1 million per year. An individual is a covered employee if he or she is the chief executive officer or one of the other three highest compensated officers for the year (other than the chief executive officer or chief financial officer). The $1 million limit does not apply to compensation payable solely because of the attainment of performance conditions that meet the requirements set forth in Section 162(m) of the Code and the regulations thereunder. Compensation is considered performance-based only if (a) it is paid solely on the achievement of one or more performance conditions; (b) two or more "outside directors" set the performance conditions; (c) before payment, the material terms under which the compensation is to be paid, including the performance conditions, are disclosed to, and approved by, the shareholders; and (d) before payment, two or more "outside directors" certify in writing that the performance conditions have been met. The 2016 Plan has been designed to enable the Compensation Committee to structure awards that are intended to meet the requirements for qualified performance-based compensation that would not be subject to the $1 million per year deduction limit under Section 162(m) of the Code.

Any grant, exercise, vesting or payment of an award may be postponed if we reasonably believes that our or any applicable affiliate's deduction with respect to such award would be limited or eliminated by application of Section 162(m) of the Code to the extent permitted by Section 409A of the Code; provided, however, such delay will last only until the earliest date at which we reasonably anticipates the deduction will not be limited or eliminated under Section 162(m) of the Code.

Other Tax Rules. The 2016 Plan is designed to enable the Compensation Committee to structure awards that are intended to not be subject to Code Section 409A, which imposes certain restrictions and requirements on deferred compensation.

Director Compensation

Prior to the Merger, Ohr compensated its non-employee directors for their service on the Ohr board of directors. Non-employee members of the Ohr board of directors received a combination of cash compensation, in the form of annual retainers, and equity incentive compensation, in the form of stock option awards, for their service on the Ohr board of directors.

Upon the completion of the Merger, we adopted an outside director compensation policy (as amended from time to time, "Outside Director Compensation Policy") pursuant to which the members of the Board who are not employees of the Company (such members, the "Outside Directors") were eligible to receive cash and equity compensation. Each Outside Director was entitled to receive an annual cash retainer of $25,000, paid quarterly, during fiscal 2019 and 2020. In addition, during fiscal 2019, each Outside Director was granted a non-statutory stock option to purchase 227,330 shares of our common stock with an exercise price of $5.39 per share following the Merger. These options vest in equal monthly installments over a three-year period and vesting of such options commenced on the effective date of the Merger.

On September 9, 2020, the Compensation Committee of the Board of the Company approved an amended Outside Director Compensation Policy. The Company intended for the Outside Director Compensation Policy to formalize the Company's policy regarding cash compensation, grants of equity and reimbursement of travel expenses to its

Outside Directors.

Cash Compensation of Directors

Under the amended Outside Director Compensation Policy, Outside Directors will be entitled to a cash retainer of $35,000 for their service on the Board (exclusive of any participation on its Committees). Outside Directors serving on any of the Board's Audit, Compensation and Nominating & Corporate Governance Committees in a non-Chairperson capacity will be entitled to a cash retainer of $7,500, $5,000 and $4,000, respectively, for services on such Committees, and the Chairpersons of such Committees will be entitled to such amounts for their service as members of such Committees and $15,000, $10,000 and $8,000, respectively, for services as Chairpersons of such Committees. The Outside Director Compensation Policy does not provide for any per meeting attendance fees for any meeting of the Board or its Committees.

Equity Grants to Directors

Furthermore, the amended Outside Director Compensation Policy provides that Outside Directors will be eligible to receive all types of awards (except incentive stock options) under the Company's 2019 Stock Incentive Plan, as amended (the "Plan") (or the applicable equity plan in place at the time of grant), including discretionary awards not covered under the Outside Director Compensation Policy.

Subject to limitations on individual grants to Outside Directors under the Plan, upon an Outside Director's appointment to the Board, such Outside Director automatically will be granted a nonstatutory stock option to purchase shares of the Company's common stock having a grant date fair value of $320,000 (the "NSO Appointment Award"). Subject to further adjustment provisions as described in the Outside Director Compensation Policy and the Plan, 25% of each NSO Appointment Award will vest on the one-year anniversary of the grant date, and the remaining portion of the NSO Appointment Award will vest on an equal monthly basis over the following 36 months, provided that the Outside Director is in continuous service with the Company or an affiliate of the Company through the applicable vesting date. Each NSO Appointment Award will vest fully upon a Change in Control (as defined in the Plan), in each case, provided that the Outside Director is in continuous service with the Company or an affiliate of the Company through the Change in Control.

In addition, subject to limitations on individual grants to Outside Directors under the Plan, on the first business day after each annual meeting of the Company's stockholders beginning with the 2021 annual meeting, each Outside Director automatically will be granted a nonstatutory stock option to purchase shares of the Company's common stock having a grant date fair value of $90,000 (the "Annual NSO Award"); provided that the initial Annual NSO Award granted on or after the Outside Director Compensation Policy's effective date was made on September 9, 2020. Each of our Outside Directors was thus granted a stock option to purchase 14,634 shares of the Company's common stock with an exercise price of $8.80 on September 9, 2020. Subject to further adjustment provisions as described in the Outside Director Compensation Policy and the Plan, 25% of each Annual NSO Award will vest on the one-year anniversary of the grant date, and the remaining portion of the Annual NSO Award will vest on an equal monthly basis over the following 36 months, provided that the Outside Director is in continuous service with the Company or an affiliate of the Company through the applicable vesting date. Each Annual NSO Award will vest fully upon a Change in Control (as defined in the Plan), in each case, provided that the Outside Director is in continuous service with the Company or an affiliate of the Company through the Change in Control.

With regard to any of the nonstatutory stock options granted under the Outside Director Compensation Policy described above, the per share exercise price for all such options will be 100% of the fair market value of the shares underlying the options on the grant date.

Non-Employee Director Compensation for Fiscal 2020

Below is a summary of the non-employee director compensation paid in the fiscal year ended September 30, 2020:

Name	Cash Compensation (1)	Option Grants (2)	Stock Awards (3)	Total
Dov A. Goldstein, M.D.	$ 25,000	$ 89,999	$ —	$ 114,999
Diego Miralles, M.D.	$ 25,000	$ 89,999	$ —	$ 114,999
Franklyn G. Prendergast, M.D., Ph.D.	$ 25,000	$ 89,999	$ —	$ 114,999
Eric I. Richman	$ 25,000	$ 89,999	$ —	$ 114,999

(1) Represents the value of the annual retainers payable to our non-employee directors during fiscal 2020. For a discussion of the change in the amount of annual retainers payable to our Outside Directors during fiscal 2021 pursuant to our amended Outside Director Compensation Policy, see the section entitled "Director Compensation" of this Form 10-K.

(2) Pursuant to the Company's Outside Director Compensation Policy, the Company granted each of our Outside Directors a stock option to purchase 14,634 shares of the Company's common stock with an exercise price of $8.80 on September 9, 2020. With respect to each Outside Director, the option to purchase 227,330 shares of the Company's common stock that was granted upon the consummation of the Merger and the stock option to purchase 14,634 shares of the Company's common stock that was granted to each Outside Director on September 9, 2020 remained outstanding as of September 30, 2020.

(3) We did not grant any stock awards to our directors in fiscal 2020.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Equity Compensation Plan Information

The following table gives information as of September 30, 2020 about shares of our common stock that may be issued upon the exercise of options under our existing equity compensation plans:

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)(1)	Weighted-average exercise price of outstanding options, warrants and rights (b)(2)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)(3)

Equity compensation plans approved by security holders (4)	2,853,384	$ 5.99	1,128,868
Equity compensation plans not approved by security holders (5)	3,337,406	$ 0.001	—
Total	6,190,790	$ 2.76	1,128,868

(1) Consists of options outstanding as of September 30, 2020 under the NeuBase Therapeutics, Inc. 2019 Stock Incentive Plan (the "2019 Plan"), the NeuBase Therapeutics, Inc. 2018 Equity Incentive Plan (the "2018 Plan"), the Ohr Pharmaceutical, Inc. 2016 Consolidated Stock Incentive Plan (the "2016 Plan"), the Ohr Pharmaceutical, Inc. 2014 Stock Incentive Plan (the "2014 Plan") and the Ohr Pharmaceutical, Inc. 2009 Stock Incentive Plan.

(2) Consists of the weighted average exercise price of outstanding options as of September 30, 2020.

(3) Consists entirely of shares of common stock that remain available for future issuance under the 2019 Plan and the 2016 Plan as of September 30, 2020.

(4) The number of shares of our common stock available for issuance under the 2019 Plan will automatically increase on October 1st of each year, for a period of not more than ten years, beginning October 1, 2019 and ending on (and including) October 1, 2028 by the lesser of (a) 4.0% of the total number of shares of our common stock outstanding as of September 30th of the immediately preceding fiscal year, and (b) such number of shares of common stock determined by our board of directors.

(5) Consists of the 2018 Plan.

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth information with respect to the beneficial ownership, as of September 30, 2020, of our common stock by (a) each of our Named Executive Officers and current directors individually, (b) our current directors and executive officers as a group and (c) each holder of more than 5% of our outstanding common stock. This table is based upon information supplied by officers, directors and principal stockholders and a review of Schedules 13D and 13G, if any, filed with the SEC. Other than as set forth below, we are not aware of any other beneficial owner of more than five percent of our common stock as of September 30, 2020. Except as indicated by the footnotes below, we believe, based on the information furnished to us, that the persons and entities named in the table below have sole voting and investment power with respect to all shares of common stock that they beneficially own, subject to applicable community property laws.

Beneficial ownership and percentage ownership are determined in accordance with the Rule 13d-3 of the Exchange Act. Under these rules, shares of our common stock issuable under stock options that are exercisable within 60 days of the Reference Date are deemed outstanding for the purpose of computing the percentage ownership of the person holding the options, but are not deemed outstanding for the purpose of computing the percentage ownership of any other person.

Unless otherwise indicated and subject to applicable community property laws, to our knowledge, each stockholder named in the following table possesses sole voting and investment power over their shares of our common stock, except for those jointly owned with that person's spouse.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Class (%) (1)
Dietrich Stephan, Ph.D., Chief Executive Officer and Director (2)	5,872,094	22.2%
Entities affiliated with Greenlight Capital, Inc. (3)	1,903,227	8.2%
Directors and Named Executive Officers (4)		
Sam Backenroth, Chief Financial Officer (5)	289,271	1.2%
William Mann, Ph.D., Chief Operating Officer	-	*
Curt Bradshaw, Ph.D., Chief Scientific Officer (6)	-	*
Dov A. Goldstein, M.D., Director (7)	111,035	*
Diego Miralles, M.D., Director (8)	101,035	*
Franklyn G. Prendergast, M.D., Ph.D., Director (9)	101,035	*
Eric I. Richman, Director (10)	137,115	*
All current executive officers and directors as a group (eight persons) (11)	6,611,585	24.4%

* Less than one percent.

(1) Percentage ownership is calculated based on a total of 23,154,084 shares of our common stock issued and outstanding as of September 30, 2020.

(2) Represents (i) 3,311,930 shares of common stock issuable pursuant to stock options exercisable within 60 days after September 30, 2020, (ii) 2,547,639 shares of our common stock held directly by Lipizzaner LLC, of which Dr. Stephan is the sole member and (iii) 12,525 shares of our common stock held jointly by Dr. Stephan as a tenant by the entirety with his spouse.

(3) Greenlight Capital, Inc. ("Greenlight Inc.") is the investment manager for Greenlight Capital Qualified, L.P., Greenlight Capital, L.P. and Greenlight Capital Offshore Partners, and as such has voting and dispositive power over 415,437 shares of our common stock held by Greenlight Capital Qualified, L.P., 76,497 shares of our common stock held by Greenlight Capital, L.P., and 635,162 shares of our common stock held by Greenlight Capital Offshore Partners. DME Capital Management, LP ("DME Management") is the investment manager for Greenlight Capital Investors, LP, and Greenlight Capital Offshore Master, Ltd., and as such has voting and dispositive power over 339,142 shares of our common stock held by Greenlight Capital Investors, LP and 368,889 shares of our common stock held by Greenlight Capital Offshore Master, Ltd. DME Advisors, LP ("DME Advisors") is the investment manager for Solasglas Investments, LP, and as such has voting and dispositive power over 68,100 shares of our common stock held by Solasglas Investments, LP. DME Advisors GP, LLC ("DME GP") is the general partner of DME Management and DME Advisors, and as such has voting and dispositive power over 776,131 shares of our common stock. David Einhorn is the principal of Greenlight Inc., DME Management and DME GP, and as such has voting and dispositive power over 1,903,227 shares of our common stock held by these affiliates of Greenlight, Inc. Mr. Einhorn disclaims beneficial ownership of these shares of our common stock, except to the extent of any pecuniary interest therein. The address of Greenlight Capital, Inc. is 140 East 45th Street, 24th Floor, New York, NY 10017.

(4) Unless otherwise indicated, the address for each of our executive officers and directors is c/o 700 Technology Drive, Third Floor, Pittsburgh, PA 15219.

(5) Represents (i) 2,501 shares of common stock issuable pursuant to warrants exercisable within 60 days after September 30, 2020, (ii) 275,140 shares of common stock issuable pursuant to options exercisable within 60 days after September 30, 2020, and (iii) 11,630 shares of our common stock held directly by Sam Backenroth.

(6) Dr. Bradshaw joined the Company in December 2020, subsequent to the reference date of the disclosure of the beneficial ownership of management pursuant to this Item 12—Security Ownership of Certain Beneficial Owners and Management And Related Stockholder Matters.

(7) Represents (i) 101,035 shares of common stock issuable pursuant to stock options exercisable within 60 days after September 30, 2020 held directly by Dov A. Goldstein, M.D., and (ii) 10,000 shares of our common stock held directly by Dr. Goldstein.

(8) Represents 101,035 shares of common stock issuable pursuant to stock options exercisable within 60 days after September 30, 2020 held directly by Diego Miralles, M.D.

(9) Represents 101,035 shares of common stock issuable pursuant to stock options exercisable within 60 days after September 30, 2020 held directly by Franklyn G. Prendergast, M.D., Ph.D.

(10) Represents (i) 101,035 shares of common stock issuable pursuant to stock options exercisable within 60 days after September 30, 2020 and (ii) 36,080 shares of our common stock held by Eric I. Richman jointly with his spouse and in a self-directed IRA.

(11) Comprised of shares beneficially owned by each of our directors, including Dr. Stephan, our President and Chief Executive Officer, Mr. Backenroth, our Chief Financial Officer, Treasurer and Secretary, Dr. Mann, our Chief Operating Officer, and Dr. Bradshaw, our Chief Scientific Officer.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

Described below are any transactions occurring since October 1, 2018 and any currently proposed transactions to which we were a party and in which:

- the amounts involved exceeded or will exceed $120,000; and
- a director, executive officer, holder of more than 5% of the outstanding capital stock of NeuBase, or any member of such person's immediate family had or will have a direct or indirect material interest.

Our board of directors has adopted a written related policy with respect to related person transactions. This policy governs the review, approval or ratification of covered related person transactions. The Audit Committee of our board of directors (the "Audit Committee") manages this policy.

For purposes of this policy, a "related person transaction" is a transaction, arrangement or relationship (or any series of similar transactions, arrangements or relationships) in which we (or any of our subsidiaries) were, are or will be a participant, and the amount involved exceeds $120,000 and in which any related person had, has or will have a direct or indirect interest. For purposes of determining whether a transaction is a related person transaction, the Audit Committee relies upon Item 404 of Regulation S-K, promulgated under the Exchange Act.

A "related person" is defined as:

- Any person who is, or at any time since the beginning of our last fiscal year was, one of our directors or executive officers or a nominee to become one of our directors;
- any person who is known to be the beneficial owner of more than five percent of any class of our voting securities;
- any immediate family member of any of the foregoing persons, which means any child, stepchild, parent, stepparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law or sister-in-law of the director, executive officer, nominee or more than five percent beneficial owner, and any person (other than a tenant or employee) sharing the household of such director, executive officer, nominee or more than five percent beneficial owner; or
- any firm, corporation, or other entity in which any of the foregoing persons is employed or is a general partner or principal or in a similar position or in which such person has a ten percent or greater beneficial ownership interest.

The policy generally provides that we may enter into a related person transaction only if:

- the Audit Committee pre-approves such transaction in accordance with the guidelines set forth in the policy;
- the transaction is on terms comparable to those that could be obtained in arm's length dealings with an unrelated third party and the Audit Committee (or the chairperson of the Audit Committee) approves or ratifies such transaction in accordance with the guideline set forth in the policy;
- the transaction is approved by the disinterested members of our board of directors; or
- the transaction involves compensation approved by our Compensation Committee.

In the event a related person transaction is not pre-approved by the Audit Committee and our management determines to recommend such related person transaction to the Audit Committee, such transaction must be reviewed by the Audit Committee. After review, the Audit Committee will approve or disapprove such transaction. When our Chief Financial Officer in consultation with our Chief Executive Officer, determines that it is not practicable or desirable for us to wait until the next Audit Committee meeting, the chairperson of the Audit Committee possesses delegated authority to act on behalf of the Audit Committee. The Audit Committee (or the chairperson of the Audit Committee) may approve only those related person transactions that are in, or not inconsistent with, our best interests and the best interests of our stockholders, as the Audit Committee (or the chairperson of the Audit Committee) determines in good faith.

Our Audit Committee has determined that certain types of related person transactions are deemed to be pre-approved by our Audit Committee. Our related person transaction policy provides that the following transactions, even if the amount exceeds $120,000 in the aggregate, are considered to be pre-approved by our Audit Committee:

- any employment of certain named executive officers that would be publicly disclosed;
- director compensation that would be publicly disclosed;
- transactions with other companies where the related person's only relationship is as a director or owner of less than ten percent of said company (other than a general partnership), if the aggregate amount involved does not exceed the greater of $200,000 or five percent of that company's consolidated gross revenues;

- transactions where all stockholders receive proportional benefits;
- transactions involving competitive bids;
- transactions with a related person involving the rendering of services at rates or charges fixed inconformity with law or governmental authority; and
- transactions with a related person involving services as a bank depositary of funds, transfer agent, registrar, trustee under a trust indenture or similar services.

In addition, our Audit Committee will review the policy at least annually and recommend amendments to the policy to our board of directors from time to time.

The policy provides that all related person transactions will be disclosed to our Audit Committee, and all material related person transactions will be disclosed to our board of directors. Additionally, all related person transactions requiring public disclosure will be disclosed, as applicable, on our various public filings.

Our Audit Committee will review all relevant information available to it about the related person transaction. The policy provides that the Audit Committee may approve or ratify the related person transaction only if our Audit Committee determines that, under all of the circumstances, the transaction is in, or is not inconsistent with, our best interests. The policy provides that our Audit Committee may, in its sole discretion, impose such conditions as it deems appropriate on us or the related person in connection with approval of the related person transaction.

Transactions with Related Persons

Participation in Our Public Offering

On April 30, 2020, the Company closed an underwritten public offering of 6,037,500 shares of its common stock (inclusive of 787,500 shares that were sold pursuant to the underwriters' full exercise of their option to purchase additional shares of the Company's common stock), at a price to the public of $6.00 per share. The Company received net proceeds from the offering of approximately $33.3 million, after deducting the underwriting discounts and commissions and other estimated offering expenses payable by the Company. Entities affiliated with Greenlight Capital, Inc. ("Greenlight Inc.") purchased 525,000 shares of common stock in the public offering at the public offering price of $6.00 per share. Greenlight Inc. is the investment manager of Greenlight Capital Qualified, L.P., Greenlight Capital, L.P. and Greenlight Capital Offshore Partners and is affiliated with DME Capital Management, LP and DME Advisors, LP, each of whom are investment advisors to certain of our stockholders. These stockholders form a group representing one of our principal stockholders as set forth in "Item 12— Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters."

Ohr Support Agreements

In order to induce Legacy NeuBase to enter into the Merger Agreement, certain Ohr securityholders that beneficially owned or controlled 8.9% as of June 3, 2019, including Mr. Sam Backenroth, our Chief Financial Officer, entered into support agreements pursuant to which, among other things, they agreed to vote all their shares of Ohr capital stock: in favor of the adoption of the Merger Agreement and the approval of the transactions contemplated thereby, including the Merger and the issuance of Ohr common stock and a reverse stock split of our common stock in connection with, or related to, the consummation of the Merger; against any action or agreement that, to the knowledge of such securityholders, would reasonably be expected to result in a breach in any material respect of any covenant, representation or warranty or any other obligation or agreement of Ohr or any of its subsidiaries or affiliates under the Merger Agreement or that would reasonably be expected to result in any of the conditions to Ohr's or any of its subsidiaries' or affiliates' obligations under the Merger Agreement not being fulfilled; and against any "acquisition proposal," or any agreement, transaction or other matter that is intended to, or would reasonably be expected to, impede, interfere with, delay, postpone, discourage or materially and adversely affect the consummation of the Merger and all other transactions contemplated by the Merger Agreement. Such securityholders also agreed not to take any actions inconsistent with the foregoing obligations, except in the event that the Board withdrew or modified its recommendation of the Merger.

Indemnification Agreements with Directors and Executive Officers

We have entered into indemnification agreements with our directors and executive officers under which we agreed to indemnify those individuals, under the circumstances and to the extent provided for in the agreements, for expenses, damages, judgments, fines, penalties, settlements and any other amounts they may be required to pay in actions, suits or proceedings which they are or may be made a party or threatened to be made a party by reason of their position as a director, officer or other agent of ours, and otherwise to the fullest extent permitted under Delaware law and our amended and restated certificate of incorporation and Restated Bylaws. We believe that these indemnification agreements are necessary to attract and retain qualified directors, officers and other key employees.

The following transactions were entered into by Legacy NeuBase prior to the completion of the Merger:

Dr. Stephan Indemnification Agreement

In August 2018, Legacy NeuBase entered into an indemnification agreement with Dr. Stephan, which provides for the advancement of expenses under certain conditions and required Legacy NeuBase to indemnify Dr. Stephan in connection with his role as an executive officer and director of Legacy NeuBase to the fullest extent permitted by the DGCL.

Dr. Stephan Restricted Stock Purchase Agreement; Option Grant

On September 6, 2018, Dr. Stephan entered into a Restricted Stock Purchase Agreement with Legacy NeuBase, pursuant to which Dr. Stephan purchased 2,500,000 shares of Legacy NeuBase's common stock at a purchase price of $0.00001 per share for a total purchase price of $25.00, which were converted into 2,547,639 shares of our common stock in the Merger. As of the date of issuance of the shares to Dr. Stephan, 25% were fully vested and the remaining 75% are scheduled to vest on an equal monthly basis over 36 months. The shares vested in full upon the closing of the Merger.

Dr. Stephan was also granted an employee stock option to acquire 3,250,000 shares of Legacy NeuBase common stock, where the shares underlying the option would vest in equal monthly installments over 48 months starting on August 28, 2018 and where 100% of the unvested shares underlying the option would immediately vest and become exercisable upon the consummation of a Change of Control (as defined in the 2018 Plan). Upon the completion of the Merger, the shares underlying the option accelerated and were exchanged for an employee stock option to acquire 3,311,930 shares of our common stock at an exercise price of $0.001 per share.

Agreement with LifeX Labs LLC

From inception through the period ended September 30, 2018, Legacy NeuBase utilized the services of LifeX Labs LLC. These services included accounting consultation and office space rental. This agreement was terminated on January 8, 2019. Dr. Stephan, our CEO, was on the board and acting as CEO of LifeX Labs LLC until December 28, 2018, when he resigned from all positions within LifeX Labs LLC. During the period ended September 30, 2019 and the period ended September 30, 2018, LifeX Labs LLC was paid $10,628 and $1,575, respectively, by Legacy NeuBase.

Dr. Stephan Support Agreement

In order to induce Ohr to enter into the Merger Agreement, certain Legacy NeuBase securityholders, including Dr. Stephan, entered into support agreements pursuant to which, among other things, they agreed to vote all of their shares of Legacy NeuBase capital stock: in favor of the adoption of the Merger Agreement and, if required, the entry of Legacy NeuBase into financing agreements for gross proceeds of $0.9 million; against any action or agreement that, to the knowledge of such securityholder, would reasonably be expected to result in a breach in any material respect of any covenant, representation or warranty or any other obligation or agreement of Legacy NeuBase or any of its subsidiaries or affiliates under the Merger Agreement or that would reasonably be expected to result in any of the conditions to Legacy NeuBase's or any of its subsidiaries' or affiliates' obligations under the Merger Agreement not being fulfilled; and against any "acquisition proposal," or any agreement, transaction or other matter that is intended to, or would reasonably be expected to, impede, interfere with, delay, postpone, discourage or materially and adversely affect the consummation of the merger and all other transactions contemplated by the Merger Agreement. Such securityholders also agreed not to take any actions inconsistent with the foregoing obligations.

Director Independence

Our common stock is listed on the Nasdaq Global Market. Under the rules of Nasdaq Stock Market LLC (the "Nasdaq Rules"), independent directors must comprise a majority of a listed company's board of directors. In addition, the Nasdaq Rules require that, subject to specified exceptions, each member of a listed company's audit, compensation, and nominating and corporate governance committees be independent. Under the Nasdaq Rules, a director will only qualify as an "independent director" if, in the opinion of the listed company's board of directors, the director does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

Audit Committee members must also satisfy the independence criteria set forth in Rule 10A-3 under the Exchange Act and the Nasdaq Rules. In addition, Compensation Committee members must satisfy the independence criteria set forth in Rule 10C-1 under the Exchange Act and the Nasdaq Rules.

Our board of directors has determined that each of Drs. Goldstein, Miralles, Prendergast and Mr. Richman met the definitions of independence under the Nasdaq Marketplace Rules and Section 10A-3 of Exchange Act. Accordingly, all of our directors, other than our Chief Executive Officer, Dr. Stephan, are deemed to be independent.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following is a summary of the fees billed to us by Marcum LLP, our current independent registered public accounting firm, and MaloneBailey, LLP and CohnReznick LLP, our former independent registered public accounting firms, for professional services rendered for the fiscal years ended September 30, 2020 and 2019, respectively:

	2020	2019
Audit Fees (1):	$ 455,620	$ 480,401
Audit-Related Fees (2):	—	—
Tax Fees (3):	—	—
All Other Fees (4):	—	—
Total All Fees:	$ 455,620	$ 480,401

(1) Audit Fees include fees for professional services performed by Marcum LLP, MaloneBailey LLP and CohnReznick LLP for the audit of our annual financial statements included in our current and prior Form 10-K filing, review of financial statements included in our quarterly Form 10-Q filings, and reviews of registration statements and issuances of consents, comfort letters and services that are normally provided in connection with statutory and regulatory filings or engagements.

(2) Audit-Related Fees consist of fees for other audit-related professional services.

(3) Consists of fees for tax compliance and consulting.

(4) No other fees were earned or paid for fiscal 2019 or fiscal 2020.

Pre-Approval Policies and Procedures

All audit and non-audit services previously provided by our independent registered public accounting firm must be pre-approved by the Audit Committee. Pre-approval may be given for a category of services, provided that (i) the category is reasonably narrow and detailed and (ii) the Audit Committee establishes a fee limit for such category. The Audit Committee may delegate to any other member of the Audit Committee the authority to grant pre-approval of permitted non-audit services to be provided by Marcum between Audit Committee meetings; provided, however, that any such pre-approval shall be presented to the full Audit Committee at its next scheduled meeting. The Audit Committee pre-approved all audit and permitted non-audit services provided by Marcum LLP, MaloneBailey and CohnReznick for professional services rendered for the fiscal years ended September 30, 2020 and 2019.

PART IV.

ITEM 15. EXHIBITS

(a) 1. Financial Statements

The information required by this item is included in Item 8 of Part II of this Form 10-K.

2. Financial Statement Schedules

The information required by this item is included in Item 8 of Part II of this Form 10-K.

3. Exhibits

The following exhibits are incorporated by reference or filed as part of this report:

Exhibit Number	Description	Incorporated by Reference			
		Form	File Number	Filing Date	Exhibit
2.1+	Agreement and Plan of Merger and Reorganization, dated as of January 2, 2019, by and among Ohr Pharmaceutical, Inc., Ohr Acquisition Corp. and NeuBase Therapeutics, Inc.	8-K	001-35963	1/3/2019	2.1
2.2	First Amendment to the Agreement and Plan of Merger and Reorganization, dated as of June 27, 2019, by and among Ohr Pharmaceutical, Inc., Ohr Acquisition Corp. and NeuBase Therapeutics, Inc.	8-K	001-35963	7/3/2019	2.1
3.1	Amended and Restated Certificate of Incorporation of the Company.	8-K	001-35963	7/12/2019	3.1
3.2	Amended and Restated Bylaws of the Company.	8-K	001-35963	9/23/2019	3.1
4.1	Form of Consulting Warrants.	10-Q	001-35963	8/15/2011	10.21
4.2	Form of Series A Warrant issued to investors pursuant to the Securities Purchase Agreement, dated December 7, 2016, by and among Ohr Pharmaceutical, Inc. and the purchasers listed therein.	8-K	001-35963	12/8/2016	4.1

4.3	Form of Warrant issued to investors pursuant to the Securities Purchase Agreement, dated as of April 5, 2017, by and among Ohr Pharmaceutical, Inc. and the purchasers listed therein.	8-K	001-35963	4/6/2017	4.1
4.4	Form of Common Stock Certificate.	S-8	333-233346	8/16/2019	4.17
4.5	Description of Securities of NeuBase Therapeutics, Inc.	10-K	001-35963	1/10/2020	4.5
10.1#	Employment Agreement, dated January 8, 2014, between Ohr Pharmaceutical, Inc. and Sam Backenroth.	8-K	001-35963	1/10/2014	10.38
10.2#	Amendment 1 to Employment Agreement, dated as of January 6, 2015, between Ohr Pharmaceutical, Inc. and Sam Backenroth.	8-K	001-35963	1/8/2015	10.51
10.3	Proprietary Information and Inventions Agreement, dated April 10, 2010, between Ohr Pharmaceutical, Inc. and Sam Backenroth.	10-K	001-35963	12/14/2015	10.3(c)
10.4	Securities Purchase Agreement, dated December 7, 2016, by and among Ohr Pharmaceutical, Inc. and to purchasers listed therein.	8-K	001-35963	12/8/2016	10.1
10.5	Securities Purchase Agreement, dated April 5, 2017, by and among Ohr Pharmaceutical, Inc. and to purchasers listed therein.	8-K	001-35963	4/6/2017	10.1
10.6#	Ohr Pharmaceutical, Inc. 2016 Consolidated Stock Incentive Plan.	8-K	001-35963	3/21/2016	10.1
10.7#	Form of Stock Option Agreement (2016 Consolidated Stock Incentive Plan).	10-K	001-35963	12/15/2017	10.11(b)
10.8#	Form of Restricted Stock Agreement (2016 Consolidated Stock Incentive Plan).	10-K	001-35963	12/15/2017	10.11(c)
10.9†	License Agreement, dated December 17, 2018, by and between NeuBase Therapeutics, Inc. and Carnegie Mellon University.	S-4	333-230168	3/8/2019	10.15
10.10	Form of NeuBase Therapeutics, Inc. Warrant Certificate.	S-4	333-230168	3/8/2019	10.16
10.11#	NeuBase Therapeutics, Inc. 2018 Equity Incentive Plan.	S-4	333-230168	3/8/2019	10.19
10.12#	Restricted Stock Purchase Agreement, made as of September 6, 2018, by and between NeuBase Therapeutics, Inc. and Dietrich A. Stephan.	S-4	333-230168	3/8/2019	10.21
10.13#	Amendment to Restricted Stock Purchase Agreement, made as of December 26, 2018, by and between NeuBase Therapeutics, Inc. and Dietrich A. Stephan.	S-4	333-230168	3/8/2019	10.22
10.14#	Executive Employment Agreement, entered into as of December 22, 2018 and effective as of August 28, 2018, by and between NeuBase Therapeutics, Inc. and Dietrich A. Stephan.	S-4/A	333-230168	5/7/2019	10.23

10.15	At-Will Employment, Confidential Information, Invention Assignment and Arbitration Agreement, dated December 22, 2018, by and between NeuBase Therapeutics, Inc. and Dietrich A. Stephan.	S-4/A	333-230168	5/7/2019	10.24
10.16#	Offer Letter of Employment, dated May 22, 2019, by and between NeuBase Therapeutics, Inc. and Sam Backenroth.	S-4/A	333-230168	5/22/2019	10.25
10.17	Employee Proprietary Information and Invention Assignment Agreement, dated May 22, 2019, by and between NeuBase Therapeutics, Inc. and Sam Backenroth.	S-4/A	333-230168	5/222019	10.26
10.18#	Offer of Employment, dated July 11, 2019, by and between NeuBase Therapeutics, Inc. and Dietrich A. Stephan.	8-K/A	001-35963	7/17/2019	10.1
10.19#	NeuBase Therapeutics, Inc. 2019 Stock Incentive Plan.	S-4	333-230168	3/8/2019	Annex E
10.20#	Form of Option Agreement under the NeuBase Therapeutics, Inc. 2019 Stock Incentive Plan.	S-8	333-233346	8/16/2019	4.6
10.21#	Form of Option Agreement under the NeuBase Therapeutics, Inc. 2018 Equity Incentive Plan.	S-8	333-233346	8/16/2019	4.8
10.22	Sublease Agreement, dated as of March 12, 2019, by and between NeuBase Therapeutics, Inc. and StartUptown dba Avenu.	10-K	001-35963	1/10/2020	10.29
10.23	Amendment No. 1 to Sublease Agreement, dated as of May 21, 2019, by and between NeuBase Therapeutics, Inc. and StartUptown dba Avenu.	10-K	001-35963	1/10/2020	10.30
10.24	Amendment No. 2 to Sublease Agreement, dated as of July 29, 2019, by and between NeuBase Therapeutics, Inc. and StartUptown dba Avenu.	10-K	001-35963	1/10/2020	10.31
10.25	Lease Extension to Sublease Agreement, dated as of February 26, 2020, by and between NeuBase Therapeutics, Inc. and StartUptown dba Avenu.	10-Q	001-35963	3/26/2020	10.1
10.26*	Amendment No. 4 to Sublease Agreement, dated as of August 20, 2020				
10.27*	Amendment No. 5 to Sublease Agreement, dated as of September 25, 2020				

10.28#	Offer Letter of Employment, dated July 22, 2020, by and between NeuBase Therapeutics, Inc. and William Mann.	8-K	001-35963	7/28/2020	10.1
10.29#	Offer Letter of Employment, dated November 30, 2020, by and between NeuBase Therapeutics, Inc. and Curt Bradshaw	8-K	001-35963	12/2/2020	10.1
10.30*+	Lease Agreement, dated as of October 2, 2020, by and between NeuBase Therapeutics, Inc. and 350 Technology Drive Partners, LLC.				
16.1	Letter from MaloneBailey, LLP, dated October 3, 2019.	8-K	001-35963	10/3/2019	16.1
16.2	Letter from CohnReznick, LLP, dated February 18, 2020.	8-K/A	001-35963	2/18/2020	16.1
21.1*	Subsidiaries.				
23.1*	Consent of Marcum LLP.				

31.1*	Certification of Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C Section 1350, As Adopted Pursuant to Section 906 of the Sarbanes Oxley Act of 2002.
101.INS*	XBRL Instance Document.
101.SCH*	XBRL Taxonomy Extension Schema Document.
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document.

* Filed herewith.
+ All schedules and exhibits to the agreement have been omitted pursuant to Item 601(b)(2) of Regulation S-K. A copy of any omitted schedule and/or exhibit will be furnished to the SEC upon request.
# Management compensatory plan or arrangement.
† The SEC has granted confidential treatment with respect to certain portions of this exhibit. Those portions have been omitted and filed separately with the SEC.

ITEM 16. FORM 10-K SUMMARY

Not applicable.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Date: December 23, 2020

NeuBase Therapeutics, Inc.

/s/ Dietrich Stephan
Dietrich Stephan, Ph.D.
President and Chief Executive Officer

Signature	Title	Date
/s/ Dietrich Stephan, Ph.D. Dietrich Stephan, Ph.D.	President, Chief Executive Officer and Director *(Principal Executive Officer)*	December 23, 2020
/s/ Sam Backenroth Sam Backenroth	Chief Financial Officer *(Principal Financial and Accounting Officer)*	December 23, 2020
/s/ Dov A. Goldstein, M.D. Dov A. Goldstein, M.D.	Director	December 23, 2020
/s/ Diego Miralles, M.D. Diego Miralles, M.D.	Director	December 23, 2020
/s/ Franklyn G. Prendergast, M.D., Ph.D. Franklyn G. Prendergast, M.D., Ph.D.	Director	December 23, 2020
/s/ Eric I. Richman Eric I. Richman	Director	December 23, 2020

Exhibit 10.26

AMENDMENT NO. 4 TO SUBLEASE AGREEMENT

This Amendment No. 4 to Lease Agreement (this "Amendment") is made and entered into this 20th day of August, 2020, with an effective date of October 1,2020 (the "Effective Date"), by and between StartUptown dba Avenu ("Tenant"), and NeuBase Therapeutics Inc. ("Subtenant"). Tenant has previously amended its lease agreement with Carnegie Mellon University ("Landlord") dated March 12, 2019 (the "Prime Lease"), a copy of which is attached as an exhibit to this Sublease.

WITNESSETH

WHEREAS, Landlord, Tenant, and Subtenant entered into that certain Lease Agreement, dated as of March 12, 2019, as amended by that certain Amendment No., Amendment No. 2 to Lease Agreement, and Amendment No. 3 to Lease Agreement, with an effective date of May l, 2020 (collectively, the "Lease");

WHEREAS, the Term of the Lease expires on September 30, 2020; WHEREAS, Subtenant wishes to extend the Term of the Lease through December 31, 2020;

WHEREAS, Landlord and Tenant agree to such extension; and

WHEREAS, by this Amendment, the parties desire to amend the Lease as provided herein.

NOW THEREFORE, in consideration of the mutual covenants contained herein and intending to be legally bound hereby, the parties agree as follows:

1. Unless otherwise provided herein, capitalized terms shall have the same meaning as set forth in the Lease.

2. Provided that an Uncured Event of Default has not occurred as of the Effective Date, the Term of the Lease shall be extended through December 31, 2020.

3. Commencing on October 1, 2020 and continuing through December 31, 2020, the monthly rental payments due under the Lease shall be Seven Thousand Three Hundred Three Dollars and Fifteen Cents ($7,303.15).

4. Except as otherwise provided herein, the terms and conditions of the Lease shall remain in full force and effect.

- Signatures Follow -

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment as of the day and year first set forth above.

TENANT

/s/ Sean C. Luther
StartUptown dba Avenu
By: Sean C.
Luther Executive Director

SUBTENANT

/s/ Sam Backenroth
NeuBase Therapeutics Inc.
By: Sam Backenroth

Exhibit 10.27

AMENDMENT NO. 5 TO SUBLEASE AGREEMENT

This Amendment No. 5 to Lease Agreement (this "Amendment") is made and entered into this 25th day of September, 2020, with an effective date of October 1, 2020 (the "Effective Date"), by and between StartUptown dba Avenu ("Tenant"), and NeuBase Therapeutics Inc. ("Subtenant"). Tenant has previously amended its lease agreement with Carnegie Mellon University ("Landlord") dated March 12, 2019 (the "Prime Lease"), a copy of which is attached as an exhibit to this Sublease.

WITNESSETH

WHEREAS, Landlord, Tenant, and Subtenant entered into that certain Lease Agreement, dated as of March 12, 2019, as amended by that certain Amendment No. 1, Amendment No. 2 to Lease Agreement, Amendment No. 3 to Lease Agreement, with an effective date of May 1, 2020 (collectively, the "Lease"), and Amendment No 4, to Lease Agreement with an effective date of October 1, 2020;

WHEREAS, by this Amendment, the parties desire to amend the Lease as provided herein.

NOW THEREFORE, in consideration of the mutual covenants contained herein and intending to be legally bound hereby, the parties agree as follows:

1. The first sentence of the first paragraph is amended by deleting "2,197 rentable square feet" and replacing it with "2,350 rentable square feet."

2. The first sentence of Section 2 of the Lease is amended by deleting "Seven Thousand Three Hundred Dollars and Fifteen Center ($7,303.15)"and replacing it with "Seven Eight Hundred Eleven Dollars and Seventy Four Center ($7,811.74)."

3. Exhibit A to the Lease is hereby deleted and replaced with Exhibit A attached hereto.

4. Except as otherwise provided herein, the terms and conditions of the Lease shall remain in full force and effect.

- Signatures Follow -

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment as of the day and year first set forth above.

TENANT

/s/ Sean C. Luther
StartUptown dba Avenu
By: Sean C.
Luther Executive Director

SUBTENANT

/s/ Dietrich Stephan
NeuBase Therapeutics, Inc.
By: Dr. Dietrich Stephan

Exhibit 10.30

LEASE AGREEMENT

BY AND BETWEEN

350 TECHNOLOGY DRIVE PARTNERS, LLC, a Pennsylvania limited liability company **("LANDLORD")**

AND

NEUBASE THERAPEUTICS, INC.
a Delaware corporation
("TENANT")

TABLE OF CONTENTS

<u>LEASE AGREEMENT</u>

THIS LEASE AGREEMENT (this “<u>Lease</u>”) is dated as of the 2nd day of October, 2020, by and between **350 TECHNOLOGY DRIVE PARTNERS, LLC**, a Pennsylvania limited liability company (“<u>Landlord</u>”) with its principal office located at 965 Greentree Road, Suite 400, Pittsburgh, Pennsylvania 15220, and **NEUBASE THERAPEUTICS, INC.**, a Delaware corporation (“<u>Tenant</u>”) with its principal office located at 700 Technology Drive, Pittsburgh, PA 15219.

<u>WITNESSETH:</u>

In consideration of the foregoing and of the representations, warranties, covenants and conditions set forth herein, and intending to be legally bound hereby, Landlord and Tenant understand and agree as follows:

ARTICLE I
<u>LEASED PREMISES</u>

1.1 <u>Demise</u>. Commencing as of the Commencement Date (as hereinafter defined), Landlord hereby agrees to lease and demise to Tenant, and Tenant hereby agrees to take and lease from Landlord, upon and subject to the terms and conditions set forth in this Lease, approximately fourteen thousand one hundred eighty-nine (14,189) rentable square feet of space, which is depicted on <u>Exhibit A</u> attached to this Lease, and known as Suite 400 (the ‘<u>Leased Premises</u>”), on the fourth (4th) floor of the building known as The Riviera, which contains approximately one hundred sixty thousand two hundred (160,200) rentable square feet (the “<u>Building</u>”), situated on certain real property having a Parcel Identification Number of 29-B-302 in the Department of Real Estate of Allegheny County, and an address of 350 Technology Drive, Pittsburgh, PA 15219 located in the City of Pittsburgh, Allegheny County, Pennsylvania (the “<u>Land</u>”), together with the nonexclusive right to use, in common with others, the Common Areas, as such term is defined below. The Building and the Land are hereinafter collectively called the "<u>Property</u>.” Landlord reserves the uses of all portions of the Property beyond the interior surfaces of the walls, floor and ceiling of the Leased Premises, including, without limitation, the right therein to install, maintain, use, repair and replace pipes, ducts, conduits and wires in locations which will not materially or adversely interfere with Tenant's use of or access to the Leased Premises. The "<u>Common Areas</u>" are defined as all entrances and exits, sidewalks, driveways, parking lots, elevators, stairs, stairwells, landscaped areas, rest rooms, and all other areas and improvements located in the Building or otherwise on the Property provided by Landlord for the common or joint use and benefit of all tenants of the Building, including, without limitation, subject to the terms and conditions of <u>Section 4.2(b)</u>, the Fitness Center, the Conference Center, the Sixth Floor Patio, the Café, and the Biowaste Room (as each such term is defined in <u>Section 4.2</u> below). Except as otherwise expressly provided in this Lease, Tenant shall lease the Leased Premises without any representation or warranty on the part of Landlord and, on the Commencement Date, Landlord will provide Tenant with the Leased Premises “as-is; where-is.”

1.2 <u>Tenant's Pro Rata Share</u>. The parties stipulate and agree for all purposes under this Lease that (i) the Leased Premises is fourteen thousand one hundred eighty-nine (14,189) rentable square feet and the Building is one hundred sixty thousand two hundred (160,200) rentable square feet, and (ii) “<u>Tenant’s Pro Rata Share</u>” shall be eight and 86/100 percent (8.86%), calculated by dividing the rentable square feet of the Leased Premises (numerator) by the rentable square feet of the Building (denominator), and expressing the fraction as a percentage. Landlord shall not remeasure the Leased Premises during the Lease Term.

1.3 Landlord's Work and Tenant Improvements; Early Access. Landlord shall cause its general contractor to construct the Landlord's Work and the Tenant Improvements (as each term is defined in the Work Letter attached hereto as Exhibit B (the "Work Letter") and made a part hereof) substantially in accordance with the terms set forth in the Work Letter, in a good and workmanlike manner, and in compliance with all applicable laws, rules, regulations, ordinances, codes, orders and other legal requirements (collectively, "Applicable Laws"). The parties agree that the Landlord's Architect (as defined in the Work Letter) and Landlord's general contractor shall be used in connection with the performance of the Tenant Improvements. Landlord shall diligently pursue Substantial Completion of the Landlord's Work and the Tenant Improvements. Subject to the terms of the Work Letter, Landlord shall have the sole right to control all aspects of the performance of the Landlord's Work and the Tenant Improvements relating to the Leased Premises, including without limitation the scheduling and sequencing of all Landlord's Work and the Tenant Improvements. Landlord represents, warrants and covenants to Tenant that from and after the date on which Landlord delivers the Leased Premises to Tenant, the base Building (including the Building systems) will comply with all Applicable Laws. Without limiting the foregoing, Landlord represents, warrants and covenants to Tenant that from and after the date on which Landlord delivers the Leased Premises to Tenant, the base Building and Common Areas will afford a "path of travel" to the Leased Premises in accordance with the requirements of the ADA, as necessary to enable Tenant to use the Leased Premises for the uses permitted hereunder in a normal and customary manner and in compliance with the ADA and all other Applicable Laws. Tenant shall have the right to access the Leased Premises three (3) weeks prior to the Commencement Date (the " Early Access Period"), as reasonably determined by Landlord. Tenant hereby acknowledges and agrees that Landlord shall be performing the Landlord's Work and Tenant Improvements in the Leased Premises during any such Early Access Period and, accordingly, Tenant shall use best efforts to cooperate with Landlord so as not to obstruct Landlord's efforts to timely and efficiently perform the Landlord's Work and Tenant Improvements. Such early access by Tenant shall be for the purpose of Tenant installing furniture, equipment or fixtures (including Tenant's data and telephone equipment) and, so long as the same does not in any manner interfere with, delay or otherwise obstruct Landlord's efforts to timely and efficiently perform the Landlord's Work and Tenant Improvements in the portion of the Leased Premises to which Tenant is tendered such early access, use such portion of the Leased Premises for the Permitted Use. Tenant's access to the Leased Premises during the Early Access Period shall be subject to all terms and conditions of the Lease, except that Tenant shall not be obligated to pay rent attributable to the Leased Premises during the Early Access Period until the Commencement Date.

1.4 Tenant Improvement Allowance.

(a) Subject to Section 1.4(c) below, Landlord shall pay the Cost of Tenant Improvements (as defined in the Work Letter) up to an amount not to exceed Two Million Nine Hundred Seventy-Nine Thousand Six Hundred Neinety and 00/100 Dollars ($2,979,690.00) (i.e., $210.00 per rentable square foot of the Leased Premises) (the "Maximum Allowance") and the amount paid by Landlord pursuant to this Section 1.4(a) is hereinafter referred to as the "Allowance." Tenant shall pay the entire Cost of the Tenant Improvements in excess of the Maximum Allowance pursuant to Section 6 of the Work Letter.

(b) In the event that the Cost of Tenant Improvements is less than Two Million Six Hundred Ninety-Five Thousand Nine Hundred Ten and 00/100 Dollars ($2,695,910.00) (i.e., $190.00 per rentable square foot of the Leased Premises) (the "Threshold Amount"), then the amount by which the Threshold Amount is greater than the Cost of Tenant Improvements shall be applied to the monthly installments of Annual Base Rent (as hereinafter defined) becoming due from and after the Commencement Date.

(c) In the event that the Cost of Tenant Improvements is greater than the Threshold Amount, then Tenant's monthly installments of Annual Base Rent shall be increased in accordance with this subsection (c) and, simultaneously with Tenant's approval of the Project Book (as defined in the Work Letter), Landlord and Tenant shall execute an amendment to this Lease reflecting the increase in Annual Base Rent as determined herein. For purposes of this subsection (c), the term "Excess Amount of Landlord-Funded TI" shall mean the difference between (i) the Cost of Tenant Improvements or the Maximum Allowance, whichever is less, and (ii) the Threshold Amount. The term "DSCR Amount" shall mean the product of the Excess Amount of Landlord-Funded TI multiplied by 1.15. The amount by which each monthly installment of Annual Base Rent payable during the initial Lease Term shall be increased pursuant to this subsection (c) shall be calculated by fully amortizing the DSCR Amount over a period of one hundred twenty-three (123) months at an interest rate equal to five and one-half percent (5.5%). For the avoidance of doubt, and by way of example only, Landlord and Tenant hereby acknowledge and agree that if the Cost of Tenant Improvements reflected in the Project Book is $2,908,745.00, each monthly installment of Annual Base Rent due during the initial Term shall be increased by $2,607.69, which amount was calculated by amortizing the DSCR Amount of $244,760.25 (i.e., 1.15 * [$2,908,745.00 - $2,695,910.00]) over one hundred twenty-three (123) months at an interest rate equal to five and one-half percent (5.5%). Attached hereto as Exhibit C-1 (for illustration purposes only) is a chart depicting the amortization of the DSCR Amount described in the foregoing example.

(d) Notwithstanding anything to the contrary contained herein, in the event that there is any Excess Amount of Landlord-Funded TI, Tenant shall have the right to prepay all (but not a portion) of the then-remaining unamortized DSCR Amount on the first (1^{st}) day of any month during the Lease Term (the "Prepayment Option"), subject to the following conditions: (i) Tenant shall provide Landlord with written notice of its election to exercise its Prepayment Option at least thirty (30) days prior to date it intends to make such prepayment; (ii) Tenant shall be required to pay the Prepayment Fee (as hereinafter defined) within thirty (30) days following receipt therefor from Landlord; and (iii) Tenant shall be required to reimburse Landlord any actual third-party unamortized loan acquisition costs (including Landlord's lender's attorneys' fees) that were incurred by Landlord in connection with obtaining the TI Loan (as hereinafter defined), which amount shall be pro rated in proportion to the Excess Amount of Landlord-Funded TI to the overall amount of the TI Loan, within thirty (30) days following receipt therefor from Landlord. Tenant acknowledges that Landlord will be required to obtain financing from its lender to fund all or a portion of the Excess Amount of Landlord-Funded TI and other tenant improvements for other tenants of the Building (the "TI Loan"). If Tenant exercises its Prepayment Option, Landlord may be required or may elect (in Landlord's sole discretion) to repay all or a portion of the TI Loan. If Landlord is required or elects to repay all or a portion of the TI Loan in connection with Tenant's exercise of the Prepayment Option, (i) Tenant shall be responsible for reimbursing Landlord (within thirty (30) days of receipt of invoice attaching evidence reasonably detailing the fees and costs listed therein) any amounts associated with Tenant prepaying all or a portion of the TI Loan, including any prepayment fees and/or other reasonable fees charged by Landlord's lender as a result of such prepayment of the TI Loan (the "Prepayment Fee"), which Prepayment Fee shall in no event exceed three percent (3%) of the total amount Tenant prepays pursuant to the Prepayment Option, and (ii) Landlord and Tenant shall thereafter (within ten (10) Business Days after the payment of the Prepayment Fee) enter into another lease amendment that further amends the amended Annual Base Rent table set that was set forth in Base Rent Amendment to reflect that the Annual Base Rent (as of the date that Tenant makes such prepayment through the end of the Lease Term) shall reduce by the amount by which said amount increased in the Base Rent Amendment. For the avoidance of doubt, and by way of example only, Landlord and Tenant hereby acknowledge and agree that if the initial DSCR Amount is $244,760.25 and Tenant elects to exercise its Prepayment Option as of the first (1st) day of the sixtieth (60th) month of the Lease Term, Tenant will be required to pay Landlord (A) $144,358.20, which amount represents the unamortized portion of the DSCR Amount as of such date, plus (B) any actual third-party unamortized loan acquisition costs (including Landlord's lender's attorneys' fees) that were incurred by Landlord in connection with obtaining the TI Loan (as prorated in proportion to the Excess Amount of Landlord-Funded TI to the overall TI Loan Amount), plus (C) the Prepayment Fee, if any.

ARTICLE II
LEASE TERM

2.1 Lease Term. The term of this Lease shall commence on the Commencement Date (as hereinafter defined) and shall expire one hundred twenty-three (123) complete calendar months thereafter (such term, as the same may from time to time be renewed or extended, shall hereinafter be referred to as the "Lease Term"), unless sooner terminated or extended in accordance with the terms of this Lease.

2.2 Commencement Date. The "Commencement Date" shall mean the date that Landlord shall have delivered possession of the Leased Premises to Tenant in broom clean condition with the Landlord's Work and the Tenant Improvements within the Leased Premises Substantially Completed. Landlord estimates that the Commencement Date shall occur on or before the date that is one hundred five (105) days after the date upon which Landlord receives all necessary permits for the construction of the Tenant Improvements. Such date, as applicable and subject to extension due to Force Majeure and Tenant Delays, is referred to herein as the " Estimated Commencement Date." At such time as the Commencement Date shall have been established, the parties shall enter into an agreement confirming the same substantially in the form attached hereto as Exhibit C. Notwithstanding the foregoing, if the Commencement Date does not occur on or before the day that is thirty (30) days following the Estimated Commencement Date, Tenant shall be entitled to one (1) day of abatement of Base Rent for every day in the period beginning on the day following the thirtieth (30^{th}) day following Estimated Commencement Date and ending on the Commencement Date, which abatement shall be in addition to any other abatement, free rent periods or other rental concessions to which Tenant may be entitled under this Lease. Subject to Tenant Delays and Force Majeure, if the Commencement Date does not occur on or before the date that is two hundred seventy (270) days following the mutual execution of this Lease (the "Outside Commencement Date"), Tenant shall be entitled to two (2) days of abatement of Base Rent for every day in the period beginning on the day following the Outside Commencement Date and ending on the Commencement Date, which abatement shall be in addition to any other abatement, free rent periods or other rental concessions to which Tenant may be entitled under this Lease.

Notwithstanding the foregoing, Tenant shall have the right to enter the Leased Premises thirty (30) days prior to the anticipated date of Substantial Completion of the Landlord's Work and the Tenant Improvements for the purposes of installing cabling, wiring, telephone equipment, fixtures, furniture, and equipment to facilitate Tenant's move-in and start-up of business operations, so long as any such entry is coordinated with Landlord and Landlord's contractors and such entry and installations do not unreasonably interfere with the work being performed by Landlord's workmen or contractors in the Leased Premises. No such entry shall be deemed Tenant's possession of the Leased Premises, or otherwise affect the occurrence of the Commencement Date. In any such event, the Tenant's workmen and contractors shall take reasonable steps to minimize interference with any work being simultaneously performed by the Landlord's workmen or contractors in the Leased Premises. In the event of any unreasonable interference prior to Substantial Completion, Landlord shall have the right to provide written notice to Tenant of such interference, and Tenant shall cause its workmen and contractors to cease such interference or cease performing such work until Landlord's workmen and contractors have completed their work. Any such early entry into and occupancy of the Leased Premises by Tenant or any person or entity working for or on behalf of Tenant shall be deemed to be subject to all of the terms, covenants, conditions and provisions of the Lease, including, without limitation, providing certificate(s) of insurance required under this Lease, excluding only the covenant to pay Rent (defined herein).

2.3 Renewal Option. Provided Tenant is not in default (beyond any applicable cure period) of the terms and conditions of this Lease at the time Tenant exercises it right under this Section, Tenant shall have the following option (the "Renewal Option") to extend the Lease Term of this Lease for a term of five (5) years (the 'Extension Term"). Tenant may exercise the Renewal Option only by providing written notice to Landlord no later than nine (9) months prior to the expiration of the then current Lease Term. The Rent for the period covered by the Renewal Option shall be on the same terms and conditions contained in this Lease, except that (a) the Annual Base Rent for the first lease year of the Renewal Term shall be equal to 95% of the Fair Market Rental Rate (as hereinafter defined) for the Leased Premises (but in no event more than five percent (5%) greater than the Annual Base Rent payable during the final year of the then current Lease Term), which amount shall escalate by one and one-half percent (1.5%) per annum for each lease year of the Extension Term, and (b) Tenant shall not be entitled to any allowances or other concessions with respect to the Extension Term unless otherwise agreed to between the parties. Except for the specific Renewal Option set forth above, there shall be no further privilege of renewal.

As used herein, the "Fair Market Rental Rate" shall mean the per square foot base rental rate then being charged for comparable space in the City of Pittsburgh for lease renewals commencing on or about the commencement of the Extension Term for similar uses and similar lengths of time, subject to reasonable adjustments for comparable space on more or less desirable floors or areas of the Building. Landlord shall determine the Fair Market Rental Rate using its good faith commercially reasonable judgment ("Landlord FMR") and shall provide written notice of such rate to Tenant within fifteen (15) days of receipt of Tenant's notice exercising the Renewal Option, which Landlord FMR, if acceptable to Tenant, shall be used to determine the Annual Base Rent for the period covered by the Renewal Option; provided, however, if Tenant disagrees with the Landlord FMR, within fifteen (15) days after receipt of the Landlord FMR, Tenant shall either (ii) withdraw Tenant' notice of exercise, or (ii) deliver to Landlord Tenant's proposed Fair Market Rental Rent using its good faith reasonable judgment (the "Tenant FMR"), and the parties shall endeavor to negotiate the Fair Market Rental Rate of the Leased Premises. If within thirty (30) days after Landlord's receipt of the Tenant FMR, Landlord and Tenant are unable to mutually agree upon the Fair Market Rental Rate of the Leased Premises, then, within ten (10) days after the expiration of said thirty-day period, each of Landlord and Tenant will select a broker to determine the Fair Market Rental Rate of the Leased Premises for the Renewal Option and, within ten (10) days after their appointment, such brokers shall select a third broker. Each of such brokers shall be a licensed commercial real estate leasing broker and shall have not less than ten (10) years' experience related to the leasing of commercial office space in comparable buildings in the City of Pittsburgh. Concurrently with the appointment of the third broker, the two brokers selected by Landlord and Tenant, respectively, shall state, in writing, his or her determination of the Fair Market Rental Rate of the Leased Premises for the Renewal Option and the supporting reasons therefor. The third broker shall conduct such investigations as he or she deems appropriate and shall, within ten (10) days after being appointed, select which of the two (2) proposed determinations most closely approximates his or her determination of the Fair Market Rental Rate of the Leased Premises for the Renewal Option. The third broker shall have no right to propose a middle ground or any modification of either of the two proposed determinations. The determination he or she chooses as that most closely approximating his or her determination of the Fair Market Rental Rate of the Leased Premises for such Renewal Option shall constitute the decision of the third broker and shall be final and binding upon the parties. Each party shall pay the fees of its own broker and one-half (½) of the fees of the third broker.

ARTICLE III
RENT

3.1 Base Rent. "Annual Base Rent" shall be calculated based on the product of the rentable square footage of the Leased Premises as stated in Section 1.2 of this Lease multiplied by the rental rate set forth in the table below.

Months of Lease Term	Base Rent per RSF	Annual Base Rent	Monthly Base Rent
1-3	$0.00	$0.00	$0.00
4-7	$37.72	-	$44,600.76
8-12	$53.72	$762,233.08	$63,519.42
13-24	$54.20	$769,043.80	$64,086.98
25-36	$54.69	$775,996.41	$64,666.37
37-48	$55.18	$782,949.02	$65,245.75
49-60	$55.69	$790,185.41	$65,848.78
61-72	$56.20	$797,421.80	$66,451.82
73-84	$56.71	$804,658.19	$67,054.85
85-96	$57.24	$812,178.36	$67,681.53
97-108	$57.77	$819,698.53	$68,308.21

109-120	$58.31	$827,360.59	$68,946.72
121-123	$59.41	$842,968.49	$70,247.37

Tenant shall pay to Landlord during the Lease Term Annual Base Rent in accordance with the above table, payable in equal monthly installments (also set forth in the table above), in advance, without notice or demand and without setoff or deduction, beginning on the Commencement Date and continuing on the first (1^{st}) day of each calendar month thereafter during the Lease Term; provided however, that upon execution of this Lease, Tenant shall pay to Landlord an amount equal to Three Hundred One Thousand Four Hundred Eighty and 96/100 Dollars ($301,480.96) to be held by Landlord and applied toward the first six (6) monthly installments of Annual Base Rent due during the Lease Term and, pending the application of such monthly installments to Annual Base Rent, such installment shall be deemed to be a security deposit under this Lease and may be held by Landlord as security for Tenant's obligations under this Lease. If the Commencement Date shall be other than the first (1^{st}) day of a calendar month, then the prorated monthly installment of Annual Base Rent for such partial calendar month shall be paid directly by Tenant on the Commencement Date. Except as expressly provided otherwise, Annual Base Rent, Additional Rent (as defined herein), and the monthly installments of Annual Base Rent shall be collectively referred to as " Rent" throughout this Lease.

Tenant acknowledges that Landlord does not invoice for Annual Base Rent, and Tenant agrees to timely pay all rent without any statement, invoice, or reminder from Landlord. Landlord shall provide separate wiring instructions. For this purpose, Tenant agrees to establish an automatic debit arrangement in order to electronically pay all installments of Annual Base Rent on or before the due date. Tenant shall provide written bank confirmation of such debit arrangement upon request y Landlord.

3.2 Payment of Increases in Real Estate Taxes.

(a) Tenant agrees to pay Landlord, as Additional Rent, Tenant's Pro Rata Share of the amount, if any, by which Real Estate Taxes (as hereinafter defined) with respect to any calendar year after the Base Year (as hereinafter defined) and in whole or in part within the Lease Term (each, a "Comparison Year") shall exceed Real Estate Taxes for the Base Year (such excess amounts hereinafter called "Increases in Real Estate Taxes") incurred during the Lease Term.

(b) "Base Year" for purposes of this Section and Section 3.3 shall mean the 2021 calendar year.

(c) "Real Estate Taxes" shall include all taxes and assessments of public authorities and governmental bodies, whether general or special, ordinary or extraordinary, which shall or may be assessed, levied, charged or imposed upon the Property or against Landlord as owner thereof or otherwise, including any assessments for public improvements or otherwise, any excise taxes, gross receipts taxes, business privilege taxes, sales taxes or other taxes, fees or charges, however described and whether or not now in the contemplation of the parties, which may be levied or assessed by the United States of America, the Commonwealth of Pennsylvania, or any political subdivision, public corporation, district, authority or other political body or entity against Landlord or the Property or the rents, issues or profits thereof or the use or occupancy of the Property, all payments in lieu of any such taxes, assessments, fees or charges, all payments under any minimum payment agreements or otherwise arising out of or related to any applicable tax increment financing, and shall also include any other taxes, assessments, fees and charges that may be levied, assessed, charged or made in substitution in whole or in part for any other Real Estate Taxes. Real Estate Taxes shall also include reasonable legal and other fees, costs and disbursements incurred in connection with any proceedings or negotiations to contest, determine or reduce any Real Estate Taxes. Real Estate Taxes shall not include (i) realty transfer, inheritance, estate or capital stock taxes or net income taxes measured by the net income of Landlord from all sources, (ii) any fines, interest or penalties incurred due to the late payment of Real Estate Taxes or by reason of late filing of any required governmental report, (iii) items included in or expressly excluded (except Real Estate Taxes) from Operating Expenses, and (iv) any amount paid by Tenant to Landlord under other provisions of this Lease. Real Estate Taxes shall be payable based on the calendar year in which they shall be payable and not based on the fiscal year of the authority imposing such Real Estate Taxes. Real Estate Taxes payable in the calendar years in which the Lease Term shall commence or expire shall be prorated by taking into account the portion of such calendar year within the Lease Term. Notwithstanding anything else herein to the contrary, unless Landlord may pay any assessment included in Real Estate Taxes at a discount (in which case Landlord may elect to make such payment at such discount), Landlord agrees that if any such assessment can be paid by Landlord in installments, such assessment shall be paid in the maximum number of installments permitted by law and shall not be included as Real Estate Taxes except in the year in which the assessment installment is actually paid. Notwithstanding the foregoing, if the Building is not fully assessed during the Base Year, the Base Year for purposes of calculating the amount of Real Estate Taxes shall be adjusted to include Real Estate Taxes that would have been incurred if the Building had been fully assessed during the Base Year.

3.3 Payment of Increases in Operating Costs.

(a) Tenant agrees to pay Landlord, as Additional Rent, Tenant's Pro Rata Share of the amount, if any, by which Operating Costs (as hereinafter defined) with respect to any Comparison Year shall exceed Operating Costs for the Base Year (such excess amounts hereinafter called "Increases in Operating Costs"). Landlord agrees to act in a commercially reasonable manner in incurring Operating Expenses, taking into consideration the class and the quality of the Building.

(b) "Operating Costs", subject to the exclusions set forth in subsection (c) below, shall mean all reasonable and actual costs incurred by Landlord in connection with the maintenance, repair, replacement, insurance, management, security, operation and ownership of the Property, as determined pursuant to sound property management accounting principles, consistently applied, including, without limitation, and by way of example (i) all costs of snow and ice removal, striping, sweeping, sealing, and repairing all driveways, parking areas, curbing, sidewalks and other Common Area portions of the Property; (ii) all costs of maintenance, repair and replacement of exterior lighting facilities, equipment, bulbs and ballasts (excluding bulbs and ballasts within a tenant's leased premises); (iii) all costs of lawn and garden maintenance, including, without limitation, cutting, trimming, planting and replacement of lawns, shrubbery and other vegetation; (iv) the costs and charges for all utility and other services furnished to the Leased Premises and other portions of the Property, including without limitation water, sewage, and gas (provided that, (A) Operating Costs shall not include the cost of utilities separately metered to measure Tenant's usage thereof (including Electric Charges as defined in Section 13.2), and (B) if the usage of any utilities by one or more other tenants in the Building shall be separately metered, then Tenant's Pro Rata Share of such utility costs shall be computed by multiplying the total amount due for such services in the entire Property less the costs of such services separately metered to one or more other tenants in the Building by a fraction, as calculated by Landlord in its good faith commercially reasonable discretion, whose numerator shall be the rentable area of the Leased Premises, and whose denominator shall be the rentable area of the Building less the rentable area leased to such other tenants in the Building whose usage of such utilities is so separately metered, all as calculated by Landlord); (v) all costs of trash and rubbish removal; (vi) all costs of pest control and extermination for the Property; (vii) all costs of maintaining and inspecting fire extinguishers, smoke and fire detectors, which are furnished by Landlord; (viii) all costs of maintaining, repairing and cleaning the exterior side of the perimeter windows; (ix) all costs of Property supplies, (x) all wages, salaries and other labor costs, including taxes, insurance and benefits, of employees of Landlord directly involved in the maintenance, security and management of the Property; (xi) the cost of commercially reasonable insurance which Landlord may carry from time to time with respect to the Property or any portion thereof or any activities thereon or related thereto, including, without limitation, casualty, liability and property damage, business interruption, rent loss and other insurance; (xii) all charges allocated to the Property and payable pursuant to any covenants, easements or restrictions now or hereafter encumbering the Property or payable to any association of owners of property which now or hereafter includes the Property (including, without limitation, the Pittsburgh Technology Center Association), as the same may be prepared, recorded and/or amended from time to time (all such covenants, easements and restrictions hereinafter collectively called the "Covenants"); (xiii) any fees payable to third parties (including, without limitation, subsidiaries and affiliates of Landlord) in connection with the management of the Property or otherwise in connection with the Property, provided that any such fees paid to an affiliate of Landlord shall not exceed a fair market rate for similar services with respect to similar types of facilities in the Pittsburgh, Pennsylvania market, and further provided that any property management fee shall not exceed four percent (4.0%) of Gross Rental Receipts (as hereinafter defined); and (xiv) any expense not foreseen above that is directly related to the maintenance, repair, replacement, insurance, management, security, operation and ownership of the Property. " Gross Rental Receipts" shall mean the fixed base rent, percentage rent, rent escalations, parking revenues, amounts paid in connection with lease terminations or modifications, and all other amounts (whether or not designated as rent) paid by tenants of the Property to Landlord pursuant to leases respecting space in the Property. The Gross Rental Receipts shall also include all charges, whether or not denominated as rent, additional rent or operating expense, which represent payment by tenants of costs and expenses in managing, operating, maintaining and repairing the Property, including, but not limited to, taxes, common area maintenance charges, insurance premiums, and other costs and expenses charged to and paid by tenants under leases of the Property. In no event shall Landlord be entitled to a reimbursement from tenants for Operating Costs in excess of one hundred percent (100%) of the costs actually paid or incurred by Landlord.

"Operating Costs" shall not include (i) any costs of utilities separately metered to Tenant or other tenants in the Building; (ii) any costs charged directly to and paid by Tenant or other tenants in the Building; (iii) any costs of obtaining new tenants of the Building, including legal expense, brokerage commissions and tenant improvement costs; (iv) costs of repair or replacement to the extent such costs shall have been paid or reimbursed by casualty insurance proceeds; (v) legal and other fees and costs incurred in connection with the enforcement of leases of space in the Building (other than covenants or other obligations relating to the use or occupancy of any portion of the Property); (vi) depreciation, principal, interest and other charges on debt or other similar non-cash items; (vii) any ground rents payable with respect to the Property or any payments of principal or interest on any indebtedness of Landlord; (viii) advertising and promotional expenses; (ix) any expenses for which Landlord has received actual reimbursement (other than through Operating Costs); (x) any "tenant allowances", "tenant concessions" and other costs or expenses incurred in fixturing, furnishing, renovating or otherwise improving, decorating or redecorating space for specific tenants or other occupants of the Building, or vacant leasable space in the Building; (xi) the cost or expense of any services, amenities or benefits provided to other tenants in the Building and not provided or available to Tenant; (xii) any capital improvement costs; (xiii) the cost of bringing the Property into compliance with any Applicable Laws that are in effect on the date of this Lease; (xiv) fines, costs or penalties incurred as a result and to the extent of a violation by Landlord of any Applicable Laws; (xv) any fines, penalties or interest resulting from the negligence or willful misconduct of Landlord; (xvi) costs incurred by Landlord in connection with the original construction of the Building (including the Fitness Center) or the correction of latent defects in the original construction of the Building; (xvii) the cost of operating any commercial concession which is operated by Landlord at the Building (other than the Cafe); (xviii) any cost or expense related to removal, cleaning, abatement or remediation of Hazardous Substances (except to the extent caused by Tenant or the Tenant Controlled Parties); (xix) reserves not spent by Landlord by the end of the calendar year for which Operating Costs are paid; (xx) all bad debt loss, rent loss, or reserves for bad debt or rent loss; (xxi) Landlord's charitable and political contributions; (xxii) costs of purchasing or leasing major sculptures, paintings or other major works or objects of art; (xxiii) depreciation; (xxiv) principal payments of mortgage and other non operating debts of Landlord; (xxv) wages and/or benefits attributable to personnel above the level of property manager; and (xxvi) costs in connection with any Common Area amenities (including, without limitation, the Fitness Center, Conference Center and Six Floor Patio) to the extent such amenities are no longer offered and available to Tenant.

(c) If the last Comparison Year shall be only partially within the Lease Term, then Tenant's obligation for Operating Costs for such Comparison Year shall be equal to the amount by which (i) the product of the Operating Costs for such Comparison Year times a fraction whose numerator shall be the number of days of such Comparison Year within the Lease Term and whose denominator shall be 365, shall exceed (ii) the product of the Operating Costs for the Base Year times the fraction referred to in clause (i) of this subsection.

(d) Notwithstanding anything to the contrary contained herein, if, in the Base Year, the Building is not occupied to the extent of ninety five (95%) of the rentable area thereof, or Landlord is not supplying services to ninety five (95%) of the rentable area thereof, the Operating Costs for the Base Year shall, for the purposes of calculating the Operating Costs, be increased to the amount which would have been incurred had the Building been occupied to the extent of ninety five (95%) of the rentable area of the Building and Landlord had been supplying services to ninety five (95%) of the rentable area of the Building.

3.4 Monthly Installments.

(a) Tenant shall pay monthly installments of Increases in Real Estate Taxes and Increases in Operating Costs, as applicable, with each monthly payment of Annual Base Rent. Such monthly installments shall be equal to Landlord's estimate from time to time of one-twelfth (1/12) of Tenant's Pro Rata Share of annual Increases in Real Estate Taxes and Increases in Operating Costs, as applicable, provided that if Landlord shall at any time or from time to time estimate that Tenant's Pro Rata Share of Increases in Real Estate Taxes or Increases in Operating Costs, as applicable, may exceed the monthly installments paid or to be paid on account thereof, Landlord shall be entitled, by notice to Tenant, to increase the amount of such monthly installments to such amount as Landlord shall determine to allow Landlord to pay Tenant's Pro Rata Share of Increases in Real Estate Taxes or Increases in Operating Costs, as applicable, when due from such installments paid by Tenant; provided, however that Landlord shall not increase the amount of such monthly installments more than twice per Comparison Year). Monthly installments of Increases in Real Estate Taxes and Increases in Operating Costs shall be paid with each monthly installment of Annual Base Rent.

(b) No later than one hundred fifty (150) days after the end of each calendar year during the Lease Term, Landlord will furnish to Tenant an itemized statement setting forth the actual amount of Increases in Real Estate Taxes and Increases in Operating Costs, as applicable, for said calendar year, as compared to the estimated payments, if any, made by Tenant during the course of said year. Upon written request by Tenant, Landlord shall provide backup for any item provided in any statement setting forth the Increases in Real Estate Taxes and Increases in Operating Costs. If Tenant's Pro Rata Share of the actual amount of Increases in Real Estate Taxes and Increases in Operating Costs, as applicable, for said calendar year shall be greater than the estimated amounts paid by Tenant with respect thereto, Tenant shall reimburse Landlord for such excess within thirty (30) days after demand as Additional Rent. If Tenant's Pro Rata Share of the actual amount of Increases in Real Estate Taxes and Increases in Operating Costs for said calendar year shall be less than the estimated amounts paid by Tenant, Landlord shall credit such excess against the next required payments of Increases in Real Estate Taxes and Increases in Operating Costs due prospectively (or, if at the end of the Lease Term, Landlord shall reimburse such amount to Tenant, subject to any claims that Landlord may have against Tenant). Landlord's failure to deliver any statement of Real Estate Taxes or Operating Costs on a timely basis with respect to any calendar year shall not prejudice Landlord's right to thereafter render such a statement with respect to such calendar year or any subsequent calendar year, nor shall the rendering of any such statement prejudice Landlord's right to thereafter deliver a corrected statement for that calendar year. However, if Landlord fails to furnish Tenant a statement of the actual amount of Increases in Real Estate Taxes and Increases in Operating Costs for said calendar year within twelve (12) months after the end of such calendar year, Landlord shall be deemed to have waived any rights to recover any underpayment of Increases in Real Estate Taxes and Increases in Operating Costs for said calendar year from Tenant.

3.5 Right to Audit. Tenant shall have the right to dispute any statement submitted by Landlord to Tenant relating to the payment of Increases in Real Estate Taxes or Increases in Operating Costs, including the accuracy thereof and the method of calculating the same, but only if (a) within sixty (60) days after Tenant's receipt of such statement, Tenant shall have notified Landlord in writing of the nature of the dispute, specifying the particular respects in which the statement is claimed to be incorrect, and (b) Tenant shall have paid the statement so in dispute. In such event, Tenant shall have the right, at its own expense, to inspect and/or audit Landlord's books and records with respect to the statement in question for a period of sixty (60) days commencing ten (10) days after Tenant's delivery of such notice to Landlord. Tenant shall notify Landlord of the results of such inspection, including its determination of the amount of any overpayment or underpayment, if any, within thirty (30) days after such inspection is completed. If Landlord disputes such results, it shall give notice to Tenant setting forth the nature of such dispute within ten (10) days after receipt of Tenant's notice, whereupon Tenant's representatives will promptly meet with Landlord's representatives in an effort to resolve such dispute. If such representatives are unable to resolve such dispute within fifteen (15) days after Landlord gives such notice, then they shall designate a nationally or regionally recognized accounting firm that is unaffiliated with either party to finally resolve such dispute. Such accounting firm shall render its decision within twenty (20) days and such decision shall be final and binding upon the parties. Each party shall pay the fees of their own representatives and one-half of the fees of such joint accounting firm; provided, however, if Landlord and Tenant determine that actual Increases in Real Estate Taxes or Increases in Operating Costs for the calendar year in question were less than stated by more than five percent (5%), Landlord, within thirty (30) days after its receipt of paid invoices therefor from Tenant, shall reimburse Tenant for the reasonable amounts paid by Tenant to third parties in connection with such review by Tenant. All Additional Rent attributable to Increases in Real Estate Taxes or Increases in Operating Costs shall be appropriately adjusted (in the form of a credit or reimbursement to Tenant) based upon the final resolution, and the results of such resolution shall be final and binding upon Landlord and Tenant. The accountants conducting the audit shall be compensated on an hourly basis and shall not be compensated based upon a percentage of overcharges it discovers. Such inspections or audits shall be conducted, upon reasonable prior notice, at Landlord's office at a time reasonably convenient to Landlord during normal business hours. Each statement given by Landlord in connection with this Lease shall be conclusive and binding upon Tenant unless Tenant shall have strictly and timely complied with the foregoing conditions, without any extension of such time period which may otherwise be permitted by any other terms of this Lease.

3.6 Proration and Payment of Rent and Additional Rent. If the Commencement Date shall be other than the first (1st) day of a calendar month, then the Annual Base Rent for the calendar month in which the Commencement Date shall occur shall be prorated based on the portion of such calendar month contained within the Lease Term. All sums of money which may become due from Tenant to Landlord under this Lease other than Annual Base Rent shall constitute " Additional Rent." All Rent and Additional Rent shall be payable to Landlord in U.S. Dollars at the address of Landlord set forth in this Lease (or at such other address as may be designated by Landlord by notice to Tenant). All Rent and Additional Rent shall be payable without any abatement, set-off or deduction, except as may be expressly authorized by the other terms of this Lease. The covenants of Tenant to pay Rent, Additional Rent or any other sum under this Lease and to perform all other obligations under this Lease are deemed to be independent of any term, covenants, warrant, representation or other undertaking of Landlord under this Lease or otherwise.

3.7 Late Payment. In the event that any Rent or Additional Rent shall remain unpaid after the date when such payment shall have become due (irrespective of any grace period which may be set forth elsewhere in this Lease as a condition to the occurrence of a default hereunder), Tenant shall pay to Landlord, as Additional Rent, a late fee of five percent (5%) of the amount so due, which amount the parties agree is a reasonable charge for the additional administrative costs required of Landlord by reason of such late payment; provided, however, that Tenant shall be entitled to a grace period of five (5) days after written notice from Landlord for the first two (2) late payments in any twelve (12) month period.

3.8 Security Deposit. Tenant shall pay upon the signing of this Lease a security deposit (such deposit, together with any other "security deposit" so designated in this Lease, hereinafter called the "Security Deposit") equal to Two Hundred Fifty Thousand Seven Hundred Eighty-Two and 88/100 Dollars ($250,782.88) to be held by Landlord as security for the full and faithful performance by Tenant of the terms, covenants and conditions of this Lease. Provided that no Tenant Default has occurred and is continuing as of the first (1st) day of the thirteenth (13th) month of the Lease Term, one-half (1/2) of the amount of the Security Deposit then held by Landlord shall be applied toward the next installments of Annual Base Rent due for the thirteenth (13th) and fourteenth (14th) months of the Lease Term. The Security Deposit (or so much as remains after reduction as set forth in this paragraph) shall be refunded to Tenant within thirty (30) days following the later of the end of the Lease Term and the date Tenant cures any breaches of this Lease. The Security Deposit may be retained by Landlord and applied against (a) unpaid Rent and other sums from time to time due under this Lease, including all costs of enforcing this Lease and of performing Tenant's obligations under this Lease, that remain unpaid following any applicable notice and cure period, (b) damages due to any breach by Tenant of this Lease, (c) damages caused by Tenant to the Property, and (d) cleaning, repairs and rubbish removal upon Tenant vacating the Leased Premises. If Landlord shall at any time during the Lease Term apply the Security Deposit as permitted by this Lease, Tenant shall immediately deposit additional funds with Landlord sufficient to restore the Security Deposit to the amount required by the other terms of this Lease. Landlord may hold the Security Deposit in its general accounts with other funds, without interest, and shall have no obligation to segregate the same from any other funds.

ARTICLE IV
USE AND OCCUPANCY OF LEASED PREMISES AND COMMON AREAS

4.1 Use of Leased Premises.

(a) Tenant shall use and permit the use of the Leased Premises solely for general office use and as a laboratory for scientific and educational research, subject in all events to the terms of this Lease, the Covenants, and any zoning or other governmental restrictions and regulations (the "Permitted Use"). Landlord hereby represents and warrants that the Permitted Use is permitted by the Covenants.

(b) Tenant covenants, warrants and represents to Landlord that, except for reasonable chemicals such as lubricants, solvents, gases and cleaning fluids of the kind and in amounts and in the manner customarily found and used in a general office and laboratories in order to conduct its Permitted Use at the Leased Premises and used, stored, transported, removed, and otherwise handled in strict accordance with Applicable Laws, the Permitted Use does not and will not involve the creation, generation, use, storage, disposal or discharge of Hazardous Substances (as defined below), loud noises, obnoxious odors, skin or eye irritants, noxious gasses, excessive dust or other particulate, or any other condition or occurrence which would be considered to be a nuisance to occupants of the Building or any other property of Landlord or a danger to persons or property.

(c) Tenant shall comply, and shall require all of its subtenants and its and their respective contractors, subcontractors, licensees and invitees, and the agents and employees of the foregoing (collectively, "Tenant Controlled Parties"), to comply, at all times with the Covenants, with all Applicable Laws now or hereafter relating to the use or occupancy of the Leased Premises or the Property or pertaining to any conduct or activity within the Leased Premises or the Property, and with Landlord's rules and regulations concerning the Building attached hereto as Exhibit "D" (the "Rules and Regulations"), and such additional rules and regulations as Landlord may reasonably adopt from time to time with respect to use and occupancy by its tenants. Such Rules and Regulations shall be generally applicable, and generally applied in a non-discriminatory manner to all tenants of the Building, and Landlord hereby agrees to use commercially reasonable efforts to generally enforce the Rules and Regulations in a nondiscriminatory manner against other tenants in the Building.

(d) In the event that Tenant shall be required to obtain any permits relating to the use of the Leased Premises for the Permitted Use (as opposed to any permits required for the Landlord's Work or Tenant Improvements), Tenant shall be responsible to obtain the same and shall pay the cost thereof.

(e) If Tenant shall install any electrical equipment which overloads, or in Landlord's reasonable judgment may overload, any of the electrical lines in the Leased Premises or any other portion of the Property, or which causes, or in Landlord's reasonable judgment may cause, any surge or disruption of the Property's electrical service, Tenant shall, at Tenant's sole expense, make whatever changes are necessary to comply with the requirements of Landlord, its insurance company or governmental authorities.

4.2 Access to Landlord's Facilities. Tenant's access to certain portions of the Building, including certain Common Areas, may be restricted in various manners, including as follows:

(a) Fitness Center. Landlord covenants and agrees to make the planned fitness center in the Building (the "Fitness Center") available throughout the Lease Term for use by Tenant and other tenants in the Building as part of the Common Areas. Notwithstanding anything to the contrary contained in this Lease, all costs and expenses of any kind or nature associated with the operation, maintenance or repair of the Fitness Center including, without limitation, maintenance, repairs, replacements, equipping, utilities, janitorial, trash and rubbish removal, shall be included in Operating Costs. Landlord shall keep the Fitness Center in good operating condition, commensurate with the condition of similar fitness centers in similar buildings in the market in which the Building is located. Tenant's employees, licensees and invitees shall have access to the Fitness Center during Normal Business Hours throughout the Lease Term, subject to (i) Landlord's right to close the Fitness Center for a reasonable time for cleaning, maintenance and security purposes, and (ii) Tenant obtaining a release on Landlord's standard release form from each Tenant Controlled Party that will access the Fitness Center ("Tenant Fitness Center Users") prior to any such Tenant Fitness Center User accessing the Fitness Center. Landlord shall not be obligated to have personnel on site in the Fitness Center. Except as specifically provided above, Landlord has not made and shall not be deemed to have made any representation or warranty, express or implied, with respect to the Fitness Center, anything contained therein or the operation thereof. Tenant shall indemnify, defend and hold Landlord and Landlord's partners, employees, representatives, agents, successors and assigns, harmless from and against any and all lost, cost, expense, claims and liabilities of any kind, including without limitation, those related to personal injury, death, or destruction of property, and reasonable attorneys' fees and related costs, to the extent any of the foregoing arise from or relate to the use by Tenant Fitness Center Users of the Fitness Center or any equipment or thing therein, except to the extent the same arise from or relate to the negligence or willful misconduct of Landlord.

(b) Cafe. Landlord reserves the right to engage an operator (the "Operator") to operate a cafe in the Building (the "Cafe") for use by Tenant and other tenants in the Building as part of the Common Areas. Subject to the terms below, if Landlord does engage such an Operator, the terms and conditions of the agreement between Landlord and the Operator shall be generally consistent with terms and conditions of similar agreements between landlords and operators of cafes in similar office buildings. Landlord shall use its commercially reasonable efforts to attempt to cause the Operator to operate the Cafe Monday through Friday (excluding holidays) at reasonable hours, subject to the terms of the agreement with the Operator. All costs and expenses associated with the operation, maintenance or repair of the Cafe shall be included in the Operating Costs. If and when Landlord does engage an Operator to operate a Café, Tenant shall have non-exclusive access to the Cafe without any additional fee or charge (other than the fees and charges that are charged by the Operator for products sold). Notwithstanding the foregoing, Landlord reserves the right to lease any space dedicated to the Cafe to any tenant for the purposes of operating a cafe, restaurant, coffee shop or similar-type use, which may be open to the public.

(c) First Floor Conference Center. So long as Landlord operates the first floor conference center of the Building (the "Conference Center") for the benefit of all of the tenants in the Building, subject to Landlord's reasonable rules related to the scheduling of the Conference Center which Landlord may adopt from time to time, Tenant shall have non-exclusive access to the Conference Center.

(d) Sixth Floor Patio. Tenant's non-exclusive access to the patio located on the sixth floor of the Building (the "Six Floor Patio") is limited to Normal Business Hours. Landlord reserves the right to restrict access and use of the Six Floor Patio for special events and purposes and/or for the exclusive use of tenants of the Building.

(e) Biowaste Room. Subject to Sections 4.1(b), 4.4 and 4.5 hereof, Landlord covenants and agrees to make the planned biowaste room on the first floor of the Building (the "Biowaste Room") available throughout the Lease Term for use by Tenant and other tenants in the Building as part of the Common Areas without charge for the purposes of permitting Tenant to place, on a temporary basis, any biowaste generated in connection with the Permitted Use. Notwithstanding anything to the contrary contained in this Lease, all costs and expenses of any kind or nature associated with the operation, maintenance or repair of the Biowaste Room including, without limitation, maintenance, repairs, replacements, equipping, utilities, and janitorial, shall be included in Operating Costs; provided, however, that (i) Tenant shall, at Tenant's sole cost and expense, be responsible for removing all biowaste that Tenant places in the Biowaste Room in a reasonably timely manner and in accordance with industry standards and Applicable Laws, and (ii) in no event shall Tenant be liable for any cost or expense related to damage to the Biowaste Room or costs in connection with the remediation or removal of any biowaste from the Biowaste Room to the extent not caused by Tenant or the Tenant Controlled Parties.

4.3 Parking Garage.

(a) During the initial Lease Term, Landlord shall provide Tenant with fourteen (14) encoded entry cards (the "Access Cards") to that certain parking garage located in the Pittsburgh Technology Center at 401 Technology Drive, Pittsburgh, Pennsylvania 15219 (the "Parking Garage"), which Parking Garage is currently owned by the Urban Redevelopment Authority of Pittsburgh (the "Parking Garage Owner") and managed and operated by ALCO Parking Corporation (the "Operator"). Tenant shall have the right at any time within the first eighteen (18) months of the Lease Term to request additional Access Cards and, upon receipt of such request, Landlord shall promptly provide Tenant with the requested Access Cards at the then current rate for such Access Cards (provided, that in no event shall Tenant have the right to exceed twenty-eight (28) total Access Cards (or 2:1,000 rsf of the Leased Premises)). Tenant shall only distribute the Access Cards to its employees, permitted visitors and business invitees as may be necessary and appropriate to the conduct of Tenant's normal business operations in the Leased Premises. On a monthly basis simultaneously with each monthly payment of Annual Base Rent, Tenant shall reimburse Landlord the parking fees and associated costs and expenses that Landlord is required to pay to the Parking Garage Owner or Operator for the Access Cards, plus a parking administrative fee equal to ten percent (10%) of the cost charged per Access Card per month. In the event Landlord is required to pay parking taxes to the City of Pittsburgh or other taxing jurisdiction as a result Tenant's reimbursement obligations as set forth in this subsection (a), Tenant shall reimburse Landlord the amount of such parking taxes related thereto. Tenant hereby acknowledges and agrees that Tenant's right to use the Parking Garage hereunder is subject to all of the terms and conditions set forth in that certain License and Parking Agreement dated May 17, 2018, by and between the Parking Garage Owner and Landlord attached hereto as Exhibit E (the "Parking Agreement"), and that, as a result thereof, the parking fees and expenses Tenant is required to reimburse Landlord hereunder and the right to access and use said Parking Garage are subject to change as provided in the Parking Agreement. Tenant shall at all times comply with the terms and conditions set forth in the Parking Agreement and with all rules and regulations governing the Parking Garage as adopted by the Parking Garage Owner or the Operator from time to time. In the event Tenant exercises its option to extend the Lease Term beyond the initial Lease Term, Landlord agrees to take good faith, reasonable efforts to extend the term of the Parking Agreement in accordance with the terms set forth therein.

(b) Landlord assumes no responsibility or liability whatever to Tenant or of any of the Tenant Controlled Parties for the loss of or damage to any automobile while parked in the Parking Garage or in any property of Landlord except to the extent caused by the negligence or willful misconduct of Landlord. Except to the extent caused by the negligence or willful misconduct of Landlord, Tenant shall indemnify, defend and hold Landlord harmless from and against all liability, damages, costs and expenses which Landlord may incur and all claims which may be made against Landlord relating to any violation of this Section or the exercise of any rights of Landlord pursuant to this Section by Tenant or of any of the Tenant Controlled Parties, including reasonable attorneys' fees.

(c) Tenant shall be responsible to advise all of the Tenant Controlled Parties, of all requirements, rights and limitations of Landlord's liability set forth in this Section, and shall indemnify, defend and hold Landlord harmless from and against any liability, damages, costs and expenses which Landlord may incur and which is not to be Landlord's responsibility pursuant to this Section.

4.4 Compliance with Insurance and Applicable Laws. Tenant agrees not to use or occupy, or suffer or permit to be used or occupied, the Leased Premises or any other part of the Property in any manner deemed by Landlord or its insurance company to be an unreasonable fire or safety hazard or in violation of Applicable Laws. If Tenant's specific use or occupancy (other than for general office use) shall cause an increase in the cost to Landlord of any insurance over and above the normal cost of such insurance for the type and location of the Building, Tenant shall, on demand and as additional Rent, reimburse Landlord for such excess cost. Tenant shall comply, at its sole cost, with all Applicable Laws, including without limitation the Americans with Disabilities Act of 1990, as the same may have been or may be amended, if such costs shall be incurred by reason of the Tenant's business or use of the Leased Premises.

4.5 Hazardous Substances. Tenant agrees not to, and shall cause all of the Tenant Controlled Parties not to, store, produce or permit any Hazardous Substances on or about the Property or other property of Landlord; provided, however, Tenant may use reasonable chemicals such as lubricants, solvents, gases and cleaning fluids of the kind and in amounts and in the manner customarily found and used in a general office and laboratories in order to conduct its Permitted Use at the Leased Premises; provided, that any handling, treatment, transportation, storage, disposal or use of Hazardous Substances by Tenant in or about the Leased Premises or the Property shall strictly comply with all Applicable Laws, including, without limitation, environmental laws. Notwithstanding anything to the contrary contained herein, the parties acknowledge that Tenant wishes and intends to use all or a portion of the Leased Premises as a biotechnology research and development facility in conformance with the conduct by Tenant of its business in accordance with the Permitted Use, that such use, as conducted or proposed to be conducted by Tenant, would customarily include the handling of Hazardous Substances, and that Tenant shall therefore be permitted to engage in the handling in the Leased Premises of necessary and reasonable quantities of Hazardous Substances customarily used in or incidental to the operation of a bio-technological research, development preparation and/or dispensing facility in conformance with business operations of Tenant in the manner conducted or proposed to be conducted by Tenant hereunder ("Permitted Hazardous Substances"), provided that the handling of such Permitted Hazardous Substances by Tenant shall at all times comply with and be subject to all provisions of this Lease and all Applicable Laws. "Hazardous Substances" shall mean asbestos, asbestos-containing materials, polychlorinated biphenyls, mercury, lead, lead-based paint, chlorofluorocarbons, petroleum-based products, petroleum byproducts, explosives and other substances regulated by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. Section 9601 et seq., the Resources Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq., or any other federal, state or local laws, rules, regulations or ordinances relating to the regulation of toxic or hazardous materials or otherwise to the environment, all as the same may have heretofore been or may hereafter be amended. Tenant shall indemnify, defend and hold Landlord harmless against and from any expense for the cost of clean-up or removal and from any liability, damage, claim, cost or expense whatsoever (including, without limitation, reasonable attorneys' fees) resulting from the releasing, spilling, leaking, leaching, disposing, pumping, pouring, emitting, emptying, dumping, use, handling, treatment, manufacture, transportation, generation, storage or sale of Hazardous Substances by Tenant or any of the Tenant Controlled Parties. If Tenant fails to promptly commence any clean-up that may be required hereunder, Landlord may, but shall not be obligated to, commence and complete such clean-up and removal irrespective of any actions taken or intended to be taken by Tenant or any other party, and, in addition to any other rights and remedies Landlord may have, Landlord may charge Tenant, as Additional Rent, for the entire cost and expense thereof, which shall be payable on demand. Tenant's indemnification obligations hereunder shall survive the expiration or earlier termination of this Lease.

4.6 Animals. No animals, birds, pets or reptiles of any kind shall be permitted, brought or kept in or about the Property, with the exception of (i) service animals and (ii) lab animals used in connection with the Permitted Use (such as lab mice and similar small animals customarily used in connection with the Permitted Use), provided that the use of such lab animals shall comply with all Applicable Laws and further provided that such lab animals shall be adequately secured inside the Leased Premises at all times. The transportation of animals used in connection with the Permitted Use to and from the Leased Premises through the Common Areas shall be performed (i) using proper containers that keep such animals out of plain view, (ii) via the Building's freight elevator, and (iii) outside of Normal Business Hours.

4.7 Trash Storage and Removal. Tenant shall store all rubbish, trash, garbage, discarded containers, materials or equipment, and other refuse in fire-proof bins (to the extent required by Applicable Laws) while awaiting its removal. Such removal and transfer shall only be to storage areas designated by Landlord. Tenant shall place recyclable trash in designated bins. If Tenant's use requires trash removal or other service in excess of that of other Building occupants (as determined by Landlord in its commercially reasonable judgment), Landlord reserves the right to demand reimbursement of the reasonable cost thereof and the same shall be considered Additional Rent and shall be payable on demand; provided, however, in such an event, Tenant shall have the right to contract directly with a vendor to perform such additional service. Notwithstanding anything herein to the contrary, Tenant, at its sole cost and expense, shall be solely responsible for the removal of all hazardous and medical waste, refuse and materials from the Leased Premises in accordance with all Applicable Laws governing such removal.

4.8 Obstructions. Tenant shall not obstruct any sidewalks, Common Areas, driveways and parking areas in or on the Property. Tenant shall not place, sell or display merchandise on the sidewalks, windows, windowsills, Common Areas, driveways or parking areas in or on the Property. Tenant shall not place, store or stage any inventory, supplies, pallets, trash or other items or materials in the parking lot or any other area outside of the Leased Premises. **OUTSIDE STORAGE OR STAGING IS STRICTLY PROHIBITED.**

4.9 Access to Roof. Tenant shall not allow anyone to go on the roof of the Building for any reason unless having first received written approval from Landlord. Tenant shall indemnify and hold Landlord harmless against and from any losses, damages, costs and expenses which Landlord may incur by reason of any damage to the roof or any other property caused by Tenant or any Tenant Controlled Parties or by reason of any loss or claim of loss of any roof warranty based in whole or in part by reason of Tenant's violation of this subsection.

4.10 Injurious Conduct. Tenant shall not advertise sales nor use or permit the Leased Premises to be used in any way which, in Landlord's sole good faith judgment, may injure the reputation of Landlord or any of its tenants, or which may be a nuisance, annoyance, inconvenience or damage to Landlord or to other tenants of such park, the Property or the neighborhood, or which, in Landlord's sole good faith judgment, may interfere with the use and enjoyment of other tenants of Landlord or violate the terms of such tenants' leases.

4.11 Walls, Floors, Etc. The walls, partitions, skylights, windows, doors and transoms that reflect or admit light into the Leased Premises shall not be covered or obstructed with anything other than Landlord's standard, or Landlord approved, window treatment. Landlord reserves the right to require that such window treatments be purchased from Landlord at Landlord's then standard prices for such items. Tenant agrees to cause all occupants of the Leased Premises to use chair mats or other appropriate measures to prolong the useful life of carpet and other floor coverings.

4.12 Plumbing Fixtures. The toilet rooms, water-closets, sinks, water coolers, other water apparatus and the Building's heating, plumbing, ventilation, electrical and air conditioning systems shall not be used for any purposes other than those for which they were constructed or intended, and no sweepings, rubbish, or refuse shall be thrown or placed therein.

4.13 Visibility. Except as may otherwise be provided in Section 12.1 of this Lease, Tenant shall not place anything on the outside of the Building or Leased Premises or otherwise in a location visible from outside the Building or Leased Premises.

4.14 Offensive or Dangerous Articles. Tenant shall not keep or conduct in, on, or about the Leased Premises or any other portion of the Property any article or activity which, in Landlord's good faith judgment, has or causes an offensive odor or noise, is of an explosive, dangerous or hazardous nature, has any other adverse impact on the appearance, safety, value or operation of the Property, or has an adverse impact on the use or enjoyment of the Property by any other tenant or occupant of any portion of the Property, without the prior express written consent of Landlord. Landlord reserves the right to prohibit any form of smoking or other use of tobacco products in or on any portion of the Property, including the Leased Premises, and may in its sole discretion designate areas of the Property where such activities, if permitted at all, shall be conducted. Tenant shall police any such activity so that no debris, trash or stains are caused by any smoking or other use of tobacco products by any licensees, invitees, contractors or subcontractors of Tenant or any of the Tenant Controlled Parties, and Tenant shall promptly clean up any litter or debris, including cigarette butts and ashes, in such areas.

4.15 Building Keys. Access to the Building is provided using an access card/fob system, and Landlord shall provide Tenant (at no additional charge) with up to twenty (20) access cards/fobs for access to the Building. Tenant shall be responsible for the cost of any additional requested access cards/fobs above the initial twenty (20) provided by Landlord or the replacement of any lost cards/fobs. Tenant shall return all access cards and keys for the Building, Leased Premises and mailbox promptly upon the expiration or other termination of the Lease Term. Tenant shall not change or place additional locks on doors without Landlord's prior written consent. Tenant shall pay on demand a Thirty-Five Dollar ($35.00) charge for any lock-out outside of normal business hours. Tenant shall present such identification as any agent or contractor of Landlord may require in connections with unlocking the Building or the Leased Premises. Landlord shall have the right to impose a reasonable charge for electronic keys. Landlord shall not be responsible to provide security for interior doors or elevators or other portions of the Building interior. Landlord does not maintain interior door keys and is not responsible for lock-out. Tenant shall have use of the current Building security program (through a system then in place and maintained by Landlord). Landlord assumes no liability for Building security (interior or exterior or of the surrounding grounds) other than to engage a security service to maintain the restricted access system, and Tenant agrees to look to the security system service provider for any loss or damage.

4.16 Americans with Disabilities Act. Landlord covenants that Landlord's Work and Tenant Improvements shall materially comply with all requirements of the Americans with Disability Act ("ADA") as of the Commencement Date. Tenant shall be responsible for ensuring that the Leased Premises is ADA compliant throughout the Lease Term. The Tenant shall be responsible, at its sole effort and expense, that any changes it desires to make to the Leased Premises are ADA compliant.

4.17 Violation of Article. In the event that Tenant shall be in violation of any provision of this Article, Tenant shall, upon written notice from Landlord, immediately cease and desist from any such conduct and correct any such violation. Tenant shall indemnify and hold Landlord harmless against and from any losses, damages, costs and expenses which Landlord may incur by reason of Tenant's or any of the Tenant Controlled Parties' violation of any of Tenant's obligations as set forth in this Article.

ARTICLE V
MAINTENANCE AND REPAIRS

5.1 Tenant's Maintenance.

(a) Except for the repairs and replacements Landlord is specifically obligated to make under Section 5.2, Tenant, at its expense, shall at all times maintain and repair the Leased Premises in first-class, clean and sanitary order, condition and repair, including without limitation all carpeting, flooring, wall coverings and painted surfaces therein. Without limiting the generality of the foregoing, Tenant shall be solely responsible for the cost to furnish and replace all interior electric bulbs, ballasts, fluorescent tubes for the Leased Premises whether performed by Landlord or Tenant; this is standard in the Building. All contractors and subcontractors performing any repairs or other work within the Leased Premises shall be subject to the prior written approval of Landlord in its reasonable discretion, and prior to the commencement of any such repairs or other work. Tenant shall obtain an annual inspection and maintenance plan for the generator dedicated specifically to the Leased Premises that is being installed as part of the Tenant Improvements and shall be responsible for all maintenance, repairs and replacements with respect thereto.

(b) Notwithstanding subsection (a) above, prior to taking any action to replace any plate glass or to maintain or repair any portion of the electrical, plumbing or HVAC systems serving the Leased Premises (other than the routine replacement of bulbs and ballasts or any supplemental HVAC), Tenant shall notify Landlord of the need therefor and Tenant shall not take any such action unless thereafter: (i) Tenant is specifically authorized by notice from Landlord to do so, or (ii) Landlord does not perform such replacement, maintenance or repair in a commercially reasonable time. Landlord reserves the right to perform such replacement, maintenance and repair, irrespective of having received a notice thereof from Tenant.

5.2 Landlord's Maintenance. Landlord shall maintain and repair the exterior walls, roof, structural portions and Common Areas of the Building and the Building systems, including but not limited to any generators (other than the generator dedicated specifically to the Leased Premises that being installed as part of the Tenant Improvements), and the Building's electrical, fire, life safety, plumbing and HVAC systems, and Common Areas of the Property.

ARTICLE VI
ALTERATIONS AND ADDITIONS TO THE LEASED PREMISES

6.1 Alterations and Additions.

(a) Except in connection with a Permitted Alteration (defined below), Tenant shall not add partitions or ceilings, do any painting, make modifications to concrete floors, alter, remove or replace doors, alter or add any lighting or do any electrical, mechanical or plumbing work, or make any other alterations or additions to the

Leased Premises without the written consent of Landlord. Except for Permitted Alterations, Landlord reserves all rights to perform, or cause Landlord's Representative to perform the desired alterations and additions requested by Tenant. In addition, no such work shall be performed unless and until Landlord shall have approved all plans and specifications therefor. All such alterations and additions, if agreed to, shall be made in accordance with all Applicable Laws and shall remain for the benefit of Landlord after the Lease Term unless Landlord shall notify Tenant at the time Landlord approves of the alteration or addition that the same be removed, in which event Tenant shall remove the same and restore the Leased Premises to its original condition. Notwithstanding the foregoing, in no event shall Tenant be required to remove any standard office improvements or the Tenant Improvements. All contractors and subcontractors performing any such work or providing any materials, supplies or equipment therefor shall be subject to the prior written approval of Landlord in its sole discretion and, unless Landlord shall otherwise agree, shall be selected from Landlord's list of approved contractors in effect from time to time. Prior to the commencement of any such work or the delivery of any materials, supplies or equipment to the Leased Premises all contractors shall, to the extent permitted by applicable law, have duly and effectively waived any right of such contractor and its subcontractors to claim or file a mechanic's or materialman's lien against the Property or any portion thereof or interest therein with respect to all work, materials, supplies and equipment at any time performed or supplied to the Leased Premises or any other portion of the Property. Tenant acknowledges and agrees that any approval which Landlord may give with respect to any work to be performed by or on behalf of Tenant under this Section or any other provision of this Lease, or with respect to any contractors or subcontractors to perform the same, or with respect to any plans or specifications related thereto shall be solely for Landlord's own protection and shall not be construed to provide any warranty, representation or other assurance of any kind as to the adequacy, quality or legality thereof or as to any other matter whatsoever, and Tenant shall be solely responsible for such matters and shall indemnify, defend and hold Landlord harmless from and against all liability, damage, loss, claims, cost and expense (including attorneys' fees) relating to any such work or other matters. Notwithstanding the foregoing, Tenant shall have the right, without the consent of, but with prior notice to, Landlord, to make interior, non-structural alterations to the Leased Premises that do not affect the Building systems or materially reduce or materially impair the value of the Leased Premises, without having to first seek the approval of Landlord, provided that the cost of such alterations (other than painting and carpeting) do not exceed Twenty-Five Thousand and 00/100 Dollars ($25,000.00) in the aggregate (each, a "Permitted Alteration"); provided, further that Tenant provides Landlord with copies of its plans and specifications therefor. Tenant may install, at Tenant's sole cost and expense, a security system for the Leased Premises, provided that such system complies with Landlord's reasonable security protocols.

(b) All alterations or additions made by Tenant shall be made in a proper and workmanlike manner and with the use of only first class materials. Tenant agrees to fully pay for same and to indemnify, defend and hold Landlord harmless from all expenses, liens, claims or damages to persons or property arising therefrom or related thereto.

(c) Tenant shall maintain property insurance and cause all of Tenant's contractors performing any work with respect to the Leased Premises to maintain contractor's liability insurance in an amount which Landlord shall reasonably designate, but in no event less than the value of the work being performed by the contractor, with an insurer Landlord shall reasonably approve having a minimum AM Best rating of A-, VIII, and naming Landlord as an additional insured. Prior to the performance of any such work, Tenant shall obtain from Landlord the required amount of such insurance and shall deliver to Landlord such evidence thereof as Landlord may reasonably require.

(d) Subject to the terms of the Work Letter, Tenant acknowledges and agrees that the Leased Premises, upon the completion of any work required to be performed by Landlord at the commencement of the Lease Term, shall adequately fulfill Tenant's requirements, and in no event shall Tenant have any right to require any alterations or additions to the Leased Premises or other portions of the Property, including by reason of any change in the number of occupants or any other change in the method of Tenant's use of the Leased Premises or the Property.

(e) Any mechanics' lien filed against the Leased Premises, the Building, or the Property, or any part thereof, or Landlord's or Tenant's interest therein, for work done by or materials furnished to Tenant or for any reason whatsoever by reason of Tenant's acts and omissions or the acts or omissions of Tenant or its employees, agents, representatives, contractors, or licensees or because of a claim against Tenant or its employees, agents, representatives, contractors, or licensees shall be discharged by Tenant at its expense within twenty (20) days after filing thereof (or Landlord's or Tenant's receipt of a notice of intent to file a mechanics lien from Tenant's contractor or any of its subcontractors) by making the required cash deposit into court, by filing of the bond permitted by law, by payment, by satisfaction or otherwise. Should Tenant fail to discharge any such lien within said twenty (20) days, Landlord may, at its option, pay or otherwise discharge such lien, or pursue any or all of the other remedies provided in this Lease, at law, or in equity, and Tenant shall pay Landlord on demand as Additional Rent any sums paid by Landlord, together with default interest as set forth in this Lease. 49 P.S. §1303(d) provides that no mechanics lien shall be allowed against the estate of an owner in fee by reason of any consent given by such owner to a tenant to improve the leased premises unless it shall appear in writing signed by such owner that the erection, construction, alteration or repair was in fact for the immediate use and benefit of the owner. Landlord and Tenant hereby agree, represent and warrant that any maintenance, erection, construction, alteration or repair by Tenant hereunder is NOT, in fact, for the immediate use and benefit of the owner/Landlord and, as a result, no lien shall be allowed against the estate of owner/Landlord as a matter of law.

NOTICE IS HEREBY GIVEN THAT LANDLORD SHALL NOT BE LIABLE FOR ANY LABOR OR MATERIALS FURNISHED OR TO BE FURNISHED TO TENANT, AND THAT NO MECHANIC'S OR OTHER LIEN FOR ANY SUCH LABOR OR MATERIALS SHALL ATTACH TO OR AFFECT THE REVERSION OR OTHER ESTATE OR INTEREST OF LANDLORD IN AND TO THE DEMISED PREMISES OR THE BUILDING.

(f) Tenant acknowledges that Landlord is under contract with an owner's representative for construction management at the Building ("Landlord's Representative"). In the event that Tenant self-performs or directly contracts any alterations or additions to the Leased Premises during the Lease Term other than a Permitted Alteration or the initial Tenant Improvements, and Landlord's Representative is not also the general contractor engaged to perform such alterations or additions, Tenant shall be required to pay Landlord's Representative an overhead charge of five percent (5%) of the total project costs. This charge is to assist the Tenant and Tenant's contractors with general building knowledge, physical access during normal working hours and after hours, building security, access and understanding of the Building's mechanicals, electric, fire suppression, plumbing and other systems, and to assist with local permitting and communication with adjacent tenants.

6.2 Electronic Equipment. If Tenant shall introduce electronic equipment into the Building other than normal office and laboratory equipment (contemplated on Tenant's Final Plans) and cabling (including, but not limited to, equipment for the purpose of transmitting via satellite or other means of analog or digital signals), Tenant shall provide upon request sufficient detail to ascertain that such equipment shall not be installed in a manner that will adversely affect other tenants of the Building. The installation of any such equipment shall be considered an alteration. Tenant shall be responsible to provide all required FCC licensing and compliance with any Applicable Laws or requirements regarding such equipment and any warranty maintained by Landlord on the Building, and any applicable provisions of the Lease. Such placement or installation shall comply with all existing or future fire codes and other rules and regulations of public authorities having jurisdiction thereof. Landlord shall have the right to reasonably approve cable routes within the Leased Premises and the Building. Should Tenant not follow the approved cable routes, designated electric lines and generally accepted engineering practices in the connection of such equipment, Landlord may require the relocation, removal or rearrangement of any wires, cables and other equipment, and in the event the electronic equipment shall interfere with or disrupt service to the Property, then in addition to all other rights and remedies Landlord may have, Landlord may require the placement and use of electrical protecting devices to prevent the transmission of excessive currents or draw of excessive voltage of electricity into, from, or through the Property, or to avoid damage or limitation of source to any other part of the Property. All costs associated with the equipment, including without limitation, placement, installation, maintenance, operation, use, relocation, removal or rearrangement, shall be at the sole expense of Tenant. Any connections to electrical distribution panels made at the request of Tenant within the space shall be clearly marked with the designation of the use and its location. If Tenant shall install any electrical equipment which overloads, or in Landlord's reasonable judgment may overload, any of the electrical lines in the Leased Premises or any other portion of the Property, or which causes, or in Landlord's reasonable judgment may cause, any surge or disruption of the Property's electrical service, Tenant shall, at Tenant's sole expense, make whatever changes are reasonably necessary to comply with the requirements of Landlord, its insurance company and governmental authorities. Landlord shall in all events have the right to approve any electrical installation, including, without limitation, plans and specification and locations of the same, prior to the same being made. Tenant shall remove any such equipment installed by Tenant upon the expiration or earlier termination of this Lease (excluding wiring or cabling in connection therewith. Tenant shall be responsible for the repair of any damage to any portion of the Property caused by Tenant's placement, installation, maintenance, operation, use, relocation, removal or rearrangement of the equipment.

ARTICLE VII
ACCESS TO LEASED PREMISES

7.1 Access. Landlord reserves the right to enter the Leased Premises, and Tenant agrees to permit Landlord and its agents, upon at least twenty-four (24) hours' notice (except in the case of an actual or perceived emergency), to enter the Leased Premises for the purpose of showing the Leased Premises to prospective tenants (during the last six (6) months of the Lease Term), inspecting or examining the Leased Premises and to make such repairs, alterations, improvements or additions in and to the Leased Premises or to adjoining premises that Landlord may deem desirable or necessary or that Tenant shall have failed, although required, to do under the terms of this Lease; provided, however, that, except in the case of an actual or perceived emergency, Landlord shall use reasonable efforts to avoid unreasonable disruption to Tenant's business operations and further provided that the entrance to the Leased Premises shall not be blocked thereby. Except in an emergency, Tenant shall be entitled to have an employee of Tenant accompany the person(s) entering the Leased Premises. Such entrance into the Leased Premises by Landlord shall not be construed as an eviction of Tenant from the Leased Premises, and the Rent and any other payments provided in this Lease to be made by Tenant shall not abate while such repairs, decorations, alterations, improvements or additions are being made, nor shall Tenant have any claim against Landlord on account of loss or interruption of business or any other matter. Subject to the notice requirements set forth above, Landlord may enter the Leased Premises by a master key (or by use of force in the event of actual or perceived emergency) without incurring any liability therefor and without in any manner affecting the obligations of Tenant under this Lease.

ARTICLE VIII
FIRE OR OTHER CASUALTY

8.1 Fire or Other Casualty.

(a) If, during the Lease Term, the Leased Premises or any other portion of the Building shall be damaged by fire or other casualty, rendering the same, in Landlord's sole good faith judgment, materially unfit for the operation of the business of Tenant, and if, in Landlord's sole good faith judgment, the same cannot reasonably be repaired or restored within two hundred forty (240) days from the date of commencement of such repair or restoration, or if Landlord shall not be obligated to restore the Leased Premises by reason of the terms of subsection (b) below and shall elect not to restore the same, then this Lease shall cease and terminate from the date such damage. If this Lease shall so terminate, Tenant shall pay Rent apportioned to the time of the damage (or such later date as Tenant may cease any use of the Leased Premises) and shall immediately surrender the Leased Premises to Landlord, without further liability or obligation of Tenant and Landlord hereunder, provided, however, that nothing contained herein shall release Tenant from any liability or obligation arising or incurred prior to the time of such damage or casualty and Tenant's cessation of use of the Leased Premises.

(b) If Landlord shall have determined that any such damage can be repaired within a period of two hundred forty (240) days from the date of commencement of such repair or restoration, Landlord shall re-enter and repair said damage and the Rent shall be equitably abated based on the proportion of the Building rendered unusable by Tenant for the period during which such repairs are being made, provided that Landlord shall not have any obligation to repair or replace any portion of the Leased Premises (i) other than the improvements originally erected or installed by Landlord and in place at the time of such fire or other casualty, and (ii) if any damage thereto shall have been caused by the negligence or willful misconduct of Tenant or any of the Tenant Controlled Parties. Notwithstanding anything in this Lease to the contrary, Landlord shall not be obligated to make any restoration if (1) such casualty shall occur during the last eighteen (18) months of the then applicable Lease Term (exclusive of any unexercised options to extend the Lease Term which may be provided in this Lease), (2) there may not be adequate insurance proceeds available for use by Landlord to pay in full the cost of such restoration, or (3) Landlord shall have a reasonable belief that any other tenant in the Building may have the right to terminate its lease of space in the Building by reason of such casualty or that the Building after such restoration may have inadequate rental revenue to support any existing financing applicable to the Property or to qualify for the receipt of any contemplated financing for the Property. In the event that Landlord should fail to complete such repairs and material restoration within ninety (90) days after the date estimated by Landlord therefor, Tenant may, at its option, terminate this Lease by delivering written notice to Landlord, which notice must be given within fifteen (15) days after the expiration of said period of time, whereupon this Lease shall end on the date of such notice. In addition to Landlord's right to terminate as provided herein, Tenant shall have the right to terminate this Lease if a substantial portion of the Leased Premises has been damaged by fire or other casualty and such damage cannot reasonably be repaired (as reasonably determined by Landlord) within two hundred forty (240) days after the casualty event or sixty (60) days if there is less than one (1) year of the Lease Term remaining on the date of such casualty.

ARTICLE IX
WAIVER OF LIABILITY; INDEMNIFICATION

9.1 Waiver of Liability. Tenant agrees that all fixtures, equipment, merchandise, inventory and other personal property of Tenant or any of the Tenant Controlled Parties (each, a "Releasing Party") which may at any time now or in the future be in the Leased Premises or other portions of the Property shall be maintained there at such Releasing Parties' sole risk. Landlord shall not be liable to any Releasing Party for any damage to said property, or for loss or damage now or hereafter suffered by the business or occupation of any Releasing Party caused in any manner whatsoever except to the extent such damage or loss shall have been caused by Landlord's negligence or willful misconduct, it being agreed that all Releasing Parties shall obtain and at all times maintain adequate insurance, or shall make other arrangements for its own benefit against any loss or damage. In no event shall Landlord have any liability to Tenant or any other Releasing Party for breach of the terms of this Lease or any other liability to a Releasing Party of any kind whatsoever for damage to property or special, consequential, or punitive damages of any kind or nature, including business interruption or loss of profits, irrespective of the negligence or other fault of Landlord. In no event shall Tenant be entitled to claim constructive eviction by reason of any act or omission caused other than solely by reason of the negligence or willful misconduct of Landlord preventing any reasonable use of or access to the Leased Premises beyond such period as may be required for Landlord to correct any condition in order to provide such reasonable use or access, it being understood however that an insured casualty shall not in any event be the basis for a claim of constructive eviction, and any right of Tenant to terminate this Lease as a result of such casualty (regardless of the fault of Landlord in connection therewith) shall be governed solely by Article VIII of this Lease. In addition to the foregoing, in no event shall Landlord have any liability whatsoever by reason of any condition of the Property which is not generally regarded in the commercial office building industry in Pittsburgh, Pennsylvania as of the date of this Lease as unreasonably hazardous or as creating any unreasonable risk to the health or safety of occupants of the Property or any portion thereof, notwithstanding that subsequent changes in law, technical knowledge or commercial office building industry practices may indicate that such condition may be hazardous or may create such an unreasonable risk. Tenant acknowledges that it shall be solely responsible to maintain insurance which may be available to cover the risks referred to in this Section and to cause all Releasing Parties to maintain such insurance, to the extent available, and agree to the terms of this Section.

9.2 Tenant Indemnification. Except as otherwise specifically set forth in this Lease, Tenant shall indemnify, defend and hold harmless Landlord and any partner in Landlord, and their respective employees and agents (collectively, the "Landlord Indemnified Parties") at all times from and against any and all claims, actions, losses, injuries, damages, costs and expenses incurred by or asserted against any of the Landlord Indemnified Parties now or hereafter caused in whole or in part by or resulting or arising from (a) any act done or omission by or through Tenant or any of the Tenant Controlled Parties, (b) the use, occupancy or possession of, or conduct of business at or upon the Property by Tenant or any of the Tenant Controlled Parties, (c) any failure by Tenant to perform or observe any of the covenants, agreements, terms or conditions contained in this Lease on its part to be performed or observed, or (d) any claims by any subtenants of Tenant or any of its or their respective contractors, subcontractors, licensees, or invitees, or any agents or employees of any of the foregoing regarding matters as to which Landlord is not to have liability pursuant to the terms of this Lease. If any action or proceeding is brought against any of the Landlord Indemnified Parties, or if any claim is made against any of the Landlord Indemnified Parties alleging any of the matters referred to in this subsection, Tenant agrees at its sole cost and expense to pay, discharge and defend the Landlord Indemnified Parties against any and all such claims, actions and proceedings by counsel of Tenant's choosing, subject to Landlord's consent not be unreasonably withheld, conditioned or delayed, and to reimburse and exonerate the Landlord Indemnified Parties upon demand for any loss, cost or expense in connection therewith, including reasonable attorneys' fees and costs, costs of court, reasonable expert witness fees and costs, other fees and costs incurred in the defense of any such claim for which indemnity is given by Tenant, and any sums which any of the Landlord Indemnified Parties may pay in compromise or settlement of all or any part of such claims, actions or proceedings.

9.3 Landlord Indemnification. Except as otherwise specifically set forth in this Lease, Landlord shall indemnify, defend and hold harmless Tenant and any partner in Tenant, and their respective employees and agents (collectively, the " Tenant Indemnified Parties") at all times from and against any and all claims, actions, losses, injuries, damages, costs and expenses incurred by or asserted against any of the Tenant Indemnified Parties to the extent caused in whole or in part by or resulting or arising from (a) the negligence or willful misconduct of Landlord, any partner in Landlord, and the respective employees and agents of any of the foregoing in connection with Landlord's activities on or about the Property, and (b) any failure by Landlord to perform or observe any of the covenants, agreements, terms or conditions contained in this Lease on its part to be performed or observed. If any action or proceeding is brought against any of the Tenant Indemnified Parties, or if any claim is made against any of the Tenant Indemnified Parties alleging any of the matters referred to in this subsection, Landlord agrees at its sole cost and expense to pay, discharge and defend the Tenant Indemnified Parties against any and all such claims, actions and proceedings by counsel of Landlord's choosing, subject to Tenant's consent, not to be unreasonably withheld, and to reimburse the Tenant Indemnified Parties upon a finding by a court of competent jurisdiction for any loss, cost or expense in connection therewith, including reasonable attorneys' fees and costs, costs of court, reasonable expert witness fees and costs, other fees and costs incurred in the defense of any such claim for which indemnity is given by Landlord.

ARTICLE X
INSURANCE

10.1 Liability Insurance. During the Lease Term, Tenant shall maintain, at Tenant's own cost and expense, commercial general and/or excess liability insurance against claims for personal injury, death and property damage occurring in or about the Property and for all indemnification and defense obligations of Tenant set forth in this Lease. Such insurance shall afford protection with limits of not less than Five Million Dollars ($5,000,000) per occurrence and in the aggregate per location. Landlord shall have the right from time to time to require an increase in such insurance, consistent with customary practices for class A office buildings in the commercial real estate industry in the Pittsburgh, Pennsylvania region, provided that Landlord shall not have the right to increase the same more than once in any twelve (12) month period.

10.2 Property Insurance. Tenant agrees during the Lease Term to maintain, at its own cost and expense, contents fire insurance with extended coverage substantially covering the full replacement cost of all equipment, fixtures, merchandise, inventory and other personal property in the Leased Premises and business interruption insurance with limits sufficient to cover periods of casualty as outlined in Article VIII.

10.3 Evidence of Insurance. All insurance required by this Lease to be maintained by Tenant shall be written with a reputable company or companies with a minimum AM Best Rating of A-, VIII, and Tenant shall furnish Landlord with an appropriate certificate of the effectiveness and coverage of such polices. All such liability insurance shall name (a) Landlord, (b) Landlord's mortgagee and (c) Landlord's property manager, if any, as additional insureds. Such insurance policy shall provide that the insurer will not cancel or change the coverage provided by the policy due to failure to pay premiums without first giving Landlord ten (10) days prior written notice. In the event that Landlord shall at any time not be in possession of a certificate confirming the then current effectiveness of such insurance, Landlord may obtain such insurance and the premiums on such insurance shall be deemed Additional Rent to be paid by Tenant to Landlord upon demand; provided, however, the failure of Landlord to obtain such insurance shall not waive a default by Tenant. Immediately upon receipt or provision of notice terminating any insurance coverage, Tenant shall obtain new coverage in such types and for such amounts as required by this Lease. Tenant promptly shall provide to the Landlord copies of insurance certificates and comply in all respects with this Lease.

10.4 Landlord's Insurance. From and after the date of this Lease, Landlord will carry a policy or policies of special perils coverage insurance covering the Property endorsed to provide replacement cost coverage and with insurance against sprinkler damage, vandalism, malicious mischief and such other risks as Landlord may from time to time reasonably determine based upon industry standards and with any such deductibles as Landlord may from time to time reasonably determine based upon industry standards. Any insurance provided for in this Section may be effected by a policy or policies of blanket insurance covering additional items or locations or assureds, provided that the requirements of this Section are otherwise satisfied.

10.5 Waiver of Subrogation. In addition to all other waivers of liability contained in this Lease, Landlord and Tenant do each hereby release and relieve the other from and waive any claim of recovery for any loss or damage to the real or personal property of either located anywhere in the Property, arising out of or incident to the occurrence of any of the perils covered by their respective casualty insurance policies or arising out of perils required to be covered by insurance pursuant to the terms of this Lease. Under no circumstances whatsoever shall Landlord or Tenant or any partner in Landlord or Tenant or any agent or employee of any of the foregoing be liable for any losses or damages suffered as a result of business interruption, lost profits or other consequential damages to Tenant or Landlord, whether or not the same are a result of any negligent act or omission to act on the part of Landlord or Tenant or any such other party. Tenant undertakes such risks and shall be solely responsible at its own cost for providing its own business interruption and other insurance in amounts which Tenant deems necessary or desirable. Any insurance policy shall expressly permit such a release or contain a waiver of any rights of such insurer against Landlord and Tenant and such other persons.

ARTICLE XI
ASSIGNMENT AND SUBLETTING

11.1 Assignment and Subletting.

(a) So long as Tenant is not then in default under this Lease beyond all applicable notice and cure periods, Tenant shall be permitted to assign this Lease in its entirety or to sublease all or any portion of the Leased Premises, with notice to, but without the consent of, Landlord to: (i) any entity resulting from a merger or consolidation with Tenant; (ii) any entity succeeding to substantially all of the business and assets of Tenant as a going concern; or (iii) any subsidiary or affiliate of Tenant; provided, however, that with respect to an assignment of this Lease, such successor entity shall meet substantially the same financial status as Tenant as of the date of this Lease. If Tenant should desire to assign this Lease or sublet the Leased Premises or any part hereof as permitted in this Section 11.1(a), Tenant shall give Landlord written notice at least fifteen (15) days after the date of assignment or sublease, which notice shall specify; (w) the name, address and business of the proposed assignee or subtenant, (x) the amount and location of the space in the Leased Premises affected, (y) the effective date and duration of the subletting or assignment, and, (z) a current certified financial statement indicating the financial worthiness of the assignee. If required by the proposed assignee or subtenant and requested by Tenant, Landlord shall execute a commercially reasonable confidentiality agreement with respect to any non-public financial information concerning the proposed assignee or subtenant received from Tenant.

(b) Except as provided in subsection (a) above, Tenant shall not otherwise assign this Lease or sublet the Leased Premises in whole or in part without Landlord's prior written consent, which shall not be unreasonably withheld, conditioned or delayed. For purposes of the foregoing restriction, any transfer by Tenant of any interest in this Lease by operation of law or otherwise shall be deemed to be an unauthorized assignment under this Section and not permitted under this Lease except as provided in subsection (a) above. Notwithstanding the foregoing, if Tenant is a corporation, so long as Tenant is publicly traded on a major over-the-counter stock exchange, the ordinary transfer of shares over the counter shall be deemed not to be a transfer for purposes of this Section 11. The terms of this Section 11 shall also not apply to the infusion of additional equity capital in Tenant or an initial public offering of equity securities of Tenant under the Securities Act of 1933, as amended, which results in Tenant's stock being traded on a national securities exchange, including, but not limited to, the NYSE, the NASDAQ Stock Market or the NASDAQ Small Cap Market System. Any unauthorized assignment or sublease shall be null and void at Landlord's option, and shall entitle Landlord to declare Tenant in default hereunder. Any acceptance of Rent or Additional Rent by Landlord or other performance of this Lease by any assignee or subtenant of Tenant's interest in this Lease shall not be construed as Landlord's consent to any assignment or sublease, and Landlord shall not be estopped to assert the lack of such consent by reason of any of such matters. If Landlord consents to an assignment (except as permitted in subsection (a) above), Landlord shall be entitled to fifty percent (50%) of any rent and other consideration per square foot of rentable area paid by or on behalf of any subtenant or assignee (after deducting the costs to Tenant of such assignment or subletting in equal installments over the full term thereof including, without limitation, leasing commissions, out of pocket legal fees and reasonable, customary market tenant improvements in connection with such sublease, assignment or other transfer) which shall exceed the Rent (which shall include any Additional Rent) per square foot of rentable area payable pursuant to Article III of this Lease for a comparable period, and such excess shall be paid to Landlord within ten (10) days after receipt thereof by Tenant. Landlord shall inform Tenant within twenty (20) days whether Landlord consents to the proposed assignment or sublease. If Landlord fails to respond to Tenant's request for approval to assign this Lease or sublease the Lease Premises within such twenty (20) day period, and such failure continues for an additional ten (10) days after the delivery of additional written notice to Landlord, the sublease or assignment for which Tenant has requested consent shall be deemed to have been approved by Landlord.

(c) Any assignment of this Lease or sublease of the Leased Premises, whether permitted by the terms of this Lease or otherwise consented to by Landlord, shall be subject to all of the terms of this Lease, and any such assignee shall be deemed to have assumed for the benefit of Landlord all obligations of Tenant under this Lease, whether such obligations shall have arisen prior to such assignment or shall arise after such assignment. Within thirty (30) days after any such assignment, Tenant or such assignee shall deliver to Landlord a counterpart original of such assignment, together with the address of such assignee for purposes of notices to Tenant under this Lease. In the event of an assignment or subletting, Tenant and any guarantor under this Lease shall remain fully responsible and liable for the payment of the Rent and Additional Rent and for compliance with all of Tenant's other obligations under this Lease. No subletting of the Leased Premises shall relieve any sublessor or any prior Tenant from any obligations of Tenant under this Lease. In addition, Landlord reserves the right to enter into such amendments of this Lease as may be agreed upon between Landlord and the then current Tenant without the consent of any subtenant of the Leased Premises or any prior Tenant, and in any such event, any sublease which may then exist shall be subject to all of the terms of this Lease as so amended and each assignor and prior Tenant shall remain liable for all obligations of Tenant under this Lease as so amended, whether such obligations shall have arisen prior to or after such assignment.

ARTICLE XII
SIGNS

12.1 Signs. Landlord shall, at Tenant's cost and expense, install Tenant's signage on the exterior Building directory at the entranceway, the Building's interior lobby directory, floor directional plaques, and interior on the suite door. All such signage will be subject to Applicable Laws, the Covenants and applicable permitting, and to Landlord's approval (which approval shall not be unreasonably withheld). Landlord's approval of Tenant's desired signage shall not be a representation that Tenant's signage shall be permitted by Applicable Laws. No sign, sticker, advertisement or notice shall be erected, inscribed, painted or affixed on any part of the exterior or interior of the Leased Premises or other portions of the Property, unless approved by Landlord. Landlord shall have the right to require that all signs and other such items be purchased from suppliers designated by Landlord. Tenant shall bear all of the cost of such signs and other items, including the cost of a separate electric usage meter and the cost of installing, maintaining and removing such signs or other items. On or before the Commencement Date, Landlord shall place a placard with Tenant's name on the outdoor monument near the entrance of the Building, at Tenant's sole cost and expense, which signage shall remain in place during the remainder of the Lease Term, as the same may be extended.

ARTICLE XIII
BUILDING SERVICES

13.1 Building Services Generally. Landlord shall provide, within such reasonable standards as Landlord may establish for each item with respect to the Property from time to time, and subject to the other provisions of this Lease, the following services and facilities, the cost of which shall be part of Operating Expenses:

(a) Except to the extent such services are separately metered to the Leased Premises, interior and exterior lighting, air conditioning, ventilation and heating from the hours of 7:00 A.M. to 6:00 P.M., Monday through Friday, and 9:00 A.M. to 1:00 P.M., Saturday, except for New Years' Day, Memorial Day, Labor Day, Thanksgiving Day, and Christmas Day ("Normal Business Hours"), of at least 70 degrees Fahrenheit during the heating season and not higher than 75 degrees during the cooling season. Landlord shall not have an obligation to comply with the foregoing temperature standards (1) unless there shall be no more than six (6) persons per one thousand (1,000) usable square feet within the Leased Premises and the lighting and equipment electrical load in the Leased Premises shall not have exceeded six (6) watts per net usable square feet within the Leased Premises, and (2) with respect to areas of the Leased Premises, such as server equipment and computer rooms, to the extent the foregoing load standards shall be exceeded. Landlord shall, at Tenant's request, provide after-hour HVAC use, and the parties agree that charges, based on Landlord's actual cost of providing the service, shall be passed through to Tenant at a rate equal to Fifty Dollars ($50.00) per hour.

(b) Electric current for Building standard levels of illumination using standard lighting fixtures of Landlord's choice and for the Permitted Use, calculated at a maximum load of six (6) watts per net usable square foot.

(c) Janitor and cleaning service in the Leased Premises and the Common Areas of the Building, on Monday through Friday, holidays excepted, in accordance with the Building specifications adopted by Landlord from time to time, a current copy of which is attached hereto as Exhibit F and made a part hereof.

Notwithstanding the foregoing, Tenant acknowledges and agrees that the janitor and cleaning services shall not be performed in the laboratory rooms of the Leased Premises and that Tenant shall be responsible, at its sole cost and expense, for cleaning the laboratory rooms of the Leased Premises (and Tenant shall have the right to contract directly with a vendor to perform such janitorial services in the laboratory rooms).

(d) Maintenance and service of the public toilet rooms, if any, in the Building.

(e) Maintenance of standard hardware installed in the Building by Landlord, except to the extent that any such maintenance shall be the responsibility of Tenant pursuant to the other terms of this Lease.

(f) Passenger elevator service, if any.

(g) Hot and cold water for lavatory purposes in the public toilet rooms, if any, in the Building and in the Leased Premises.

13.2 Electric.

(a) As part of the Tenant Improvements, Landlord shall cause the electricity for the Leased Premises to be submetered. Notwithstanding anything contained in this Lease to the contrary, commencing on the Commencement Date and throughout the Lease Term, Tenant shall pay to Landlord (a) all electricity and electric costs and services (together, the "Electric Charges") furnished to the Leased Premises as reasonably determined by Landlord and (b) Tenant's Pro Rata Share of all Electric Charges furnished to the Property, which includes, without limitation, the Building (excluding any premises that is separately metered or submetered) and the Common Areas.

(b) Tenant shall pay monthly installments of Electric Charges with each monthly payment of Annual Base Rent. Such monthly installments shall be equal to Landlord's estimate from time to time of one-twelfth ($1/12^{th}$) of Tenant's Electric Charges, provided that if Landlord shall at any time or from time to time estimate that Tenant's Electric Charges may exceed the monthly installments paid or to be paid on account thereof, Landlord shall be entitled, by written notice to Tenant, to increase the amount of such monthly installments to such amount as Landlord shall determine to allow Landlord to pay Tenant's Electric Charges when due from such installments paid by Tenant. It is understood that any such increased amount required to be paid by Tenant may include a lump sum payment to account for the deficiency of any prior monthly estimated payments by reason of such revised estimate. Monthly installments of Tenant's Electric Charges shall be paid with each monthly installment of Annual Base Rent.

(c) Within a reasonable time after the end of each calendar year during the Lease Term, Landlord will furnish to Tenant a statement setting forth the actual amount of Tenant's Electric Charges as compared to the estimated payments, if any, made by Tenant during the course of said year. If the actual amount of Tenant's Electric Charges for said calendar year shall be greater than the estimated amounts paid by Tenant with respect thereto, Tenant shall reimburse Landlord for such excess within thirty (30) days after demand as Additional Rent. If Tenant's actual Electric Charges for said calendar year shall be less than the estimated amounts paid by Tenant, Landlord shall credit such excess against the next required payments of Electric Charges due prospectively (or, if at the end of the Lease Term, Landlord shall reimburse such amount to Tenant, subject to any claims that Landlord may have against Tenant). Notwithstanding the foregoing, *in lieu* of Landlord estimating Tenant's monthly Electric Charges and Tenant paying such estimated amount with each installment of monthly Annual Basement Rent, Landlord reserves the right to invoice Tenant each month for Tenant's actual Electric Charges incurred during the preceding month. In the event that Landlord elects to invoice Tenant each month for Tenant's actual Electric Charges incurred during the preceding month (as opposed to estimating Tenant's Electric Charges from time to time as provided above), then Tenant shall pay such invoiced amount within thirty (30) days after receiving the applicable invoice. Landlord's failure to deliver any statement of Electric Charges on a timely basis with respect to any calendar year shall not prejudice Landlord's right to thereafter render such a statement with respect to such calendar year or any subsequent calendar year, nor shall the rendering of any such statement prejudice Landlord's right to thereafter deliver a corrected statement for that calendar year.

13.3 Additional or Separately Metered Electrical, HVAC and Other Service. If Tenant shall require electric current, interior or exterior lighting, air conditioning, ventilation or heating in excess of that provided pursuant to Tenant's Final Plans, Tenant shall first procure the consent of Landlord, which Landlord may reasonably refuse to the use thereof if the same would cause material harm to the base Building systems. Landlord shall have the right to cause a reputable independent electrical engineering or consulting firm to evaluate such proposed electric service and its potential cost and effect on the Property. If any utility service to the Leased Premises shall be separately metered to measure Tenant's usage, Tenant shall pay for the same on or before the date required by the provider of such service for payment without the imposition of interest or late charges. Tenant shall cause all separately metered utilities to be in the name of Tenant on or before the Commencement Date.

In addition, Landlord shall provide reasonable HVAC system adjusting after initial occupancy of Tenant. In the event repeated visits are requested by Tenant and the HVAC system is maintaining temperatures in the occupied office areas of the Leased Premises as required pursuant to the terms of Section 13.1(a), the actual out of pocket costs for such visits will be billable directly to Tenant. In addition, if Tenant requests utility service (other than metered service as referred to above) or other service in excess of that of other Building occupants, Landlord reserves the right to demand reimbursement of the cost thereof as reasonably estimated by Landlord and the same shall be considered Additional Rent and shall be payable within thirty (30) days after demand (which demand shall include reasonable supporting documentation). Landlord reserves the right to reconcile the Electric Charges more often than one time per calendar year and the results of any such reconciliations shall also be handled as set forth above.

13.4 Interruption of Service. Except to the extent otherwise provided herein, no interruption or curtailment of any service or maintenance, repair or replacement in the Building or other portions of the Property shall entitle Tenant to any claim against Landlord or to any abatement of Rent, nor shall the same constitute constructive or partial eviction or disturbance of Tenant's use and possession of the Leased Premises or rights under this Lease, nor shall Landlord be liable to Tenant for damages of any kind or nature, in each case regardless of whether or not Landlord shall have received notice of the same and regardless of any negligence of Landlord or any of its agents or contractors. Notwithstanding the foregoing, in the event that any interruption, discontinuance or curtailment of services described herein is caused by Landlord's negligence or willful misconduct and adversely and materially affect's Tenant's ability to conduct its operations in the whole of the Leased Premises, or any material portion thereof (each, a "Service Interruption"), and such Service Interruption continues beyond three (3) business days after written notice to Landlord, then Tenant shall be entitled to receive an abatement of Rent payable hereunder (as to the proportion that the square footage of the Leased Premises rendered untenable as a result of such Service Interruption bears to the total square footage of the Leased Premises) during the period beginning on the fourth (4^{th}) business day of such Service Interruption and ending on the day the service has been fully restored. Notwithstanding the foregoing, in the event that any interruption, discontinuance or curtailment of services described herein continues beyond nine (9) business days after written notice to Landlord, and the Service Interruption can be corrected in ten (10) business days or less through Landlord's reasonable efforts (regardless of negligence or willful misconduct), then Tenant shall be entitled to receive an abatement of Rent payable hereunder (as to the proportion that the square footage of the Leased Premises rendered untenable as a result of such Service Interruption bears to the total square footage of the Leased Premises) during the period beginning on the tenth (10^{th}) business day of such Service Interruption and ending on the day the service has been fully restored.

13.5 Access to Building. Tenant shall have access to the Building and the Leased Premises twenty-four (24) hours a day, seven (7) days a week, including holidays. Notwithstanding the foregoing, if Landlord elects to temporarily close the Leased Premises for any reason other than a casualty, condemnation, or any negligence, willful misconduct or breach of the Lease by Tenant or any Tenant Controlled Parties, and closure of the Leased Premises is not required by a governmental order or other legal requirement, then Tenant shall be entitled to receive a per diem abatement of Rent during the period beginning on the sixth (6th) business day of such closure and ending on the date on which Landlord allows Tenant to access the Leased Premises.

ARTICLE XIV
QUIET ENJOYMENT; RELOCATION

14.1 Quiet Enjoyment. Landlord covenants and agrees that, if Tenant shall not be in default of this Lease beyond any applicable notice and cure periods, Tenant shall have the right to peaceable and quiet enjoyment and possession of the Leased Premises during the Lease Term without hindrance or ejection by any persons lawfully claiming under Landlord, subject to the terms and conditions of this Lease.

ARTICLE XV
SUBORDINATION; TRANSFER OF PROPERTY

15.1 Subordination. Tenant acknowledges that, as of the date of this Lease, the Property is subject to that certain Open-End Mortgage and Security Agreement dated as of May 7, 2018 (the "Existing Mortgage") from Landlord to Dollar Bank, Federal Savings Bank ('Current Mortgagee"). Landlord shall, at Landlord's sole cost, use commercially reasonable efforts to obtain the Current Mortgagee's signature to the subordination, non-disturbance, and attornment agreement in the form attached hereto as Exhibit "G" and made a part hereof (the "SNDA") and to deliver the same to Tenant within thirty (30) days of the date hereof. Tenant shall have no obligation to pay Rent hereunder until such time that the SNDA executed by Current Mortgagee is delivered to Tenant. This Lease shall be subject and subordinate to any mortgages now in existence or hereafter made from time to time affecting Landlord's interest in the Property, and all renewals, modifications, consolidations, replacements or extensions of any such mortgage now or hereafter made provided that Tenant's use and occupancy of the Leased Premises shall not be disturbed so long as Tenant is not in default beyond any applicable notice and cure periods under this Lease. The subordination described in the preceding sentence shall be self-operative; provided, however, that Tenant shall execute, acknowledge and deliver to the holder of any such mortgage, at any time upon demand by such holder, any commercially reasonable documents that may be required by such holder for the purpose of evidencing the subordination of this Lease to any such mortgage and to any renewals, modifications, consolidations, replacements or extensions thereof. Such agreement shall contain such terms and conditions which such holder may reasonably request. Upon written request by Tenant, Landlord will use reasonable efforts to obtain a non-disturbance, subordination and attornment agreement from Landlord's future mortgagee, if any, on such mortgagee's then current commercially reasonable standard form of agreement, provided, Tenant shall be responsible for all reasonable third-party costs (including lender's reasonable attorney's fees) associated with obtaining such agreement in an amount not to exceed $500.00. In the event of a foreclosure sale under any mortgage or in the event of the judicial sale of the Property to collect indebtedness secured by any mortgage, or in the event of any transfer of the Property in lieu thereof, then, upon request of such mortgagee, purchaser or transferee, Tenant shall attorn to and recognize as Landlord hereunder the party who, but for this Lease, would be entitled to possession of the Leased Premises. Tenant agrees to give any such mortgagee (to the extent Tenant has received written notice of such mortgagee and such mortgagee's address) notice of any default of Landlord under the terms and conditions of this Lease and agrees that if Landlord shall fail to cure such default, this Lease shall not be terminated by Tenant so long as such mortgagee, at its option, shall make reasonable efforts to cure such default, which efforts, if necessary, may be delayed until such mortgagee is able to acquire sufficient rights in the Property in order to effect such cure. The provisions of this Section relating to subordination of this Lease and to Tenant's obligation to enter into agreements with the holders of mortgages shall not apply to any mortgages which are subordinate to one or more other mortgages, unless the holders of such senior mortgages shall consent thereto in writing, and any such agreement made by Tenant with any holder of a mortgage without such consent shall be voidable at the option of the holder of any such senior mortgage which shall not have given such consent. In addition, at the option of the holder of any mortgage upon the Property, this Lease shall be senior to the lien of such mortgage. Any changes to the lender's form nondisturbance agreement and/or estoppel certificate requested by Tenant shall be at the expense of Tenant.

15.2 Transfer of Property. In the event of any transfer of Landlord's interest in the Property other than a transfer for security purposes only, Landlord shall be automatically relieved of any and all obligations and liabilities on the part of Landlord accruing from and after the date of such transfer and Tenant agrees to attorn to the transferee, provided that such transferee shall assume all such obligations and liabilities on the part of Landlord accruing from and after the date of such transfer.

ARTICLE XVI
ESTOPPEL CERTIFICATE

16.1 Estoppel Certificate. Tenant agrees, at any time and from time to time within ten (10) business days after receipt of Landlord's written request, to execute, acknowledge and deliver to Landlord or to any actual or prospective purchaser or mortgagee of the Property a written certificate stating that this Lease is unmodified and in full force and effect (or, if there have been modifications, that the same is in full force and effect as modified and stating the modifications), stating the dates to which the Rent and any other payment due from Tenant shall have been paid in advance, if any, and providing such other factual information as Landlord may reasonably require, it being intended that such certificate delivered pursuant to this Section may be relied upon by Landlord and any actual or prospective purchaser or mortgagee of the Property. If Tenant shall fail to deliver any certificate required by Section 16.1 within the time period required by such Section, Landlord may provide to Tenant a second written request with respect to such certificate. If Tenant fails to execute and deliver such certificate within a five (5) business day period following the date of Tenant's receipt of Landlord's second written request therefor, Landlord or Landlord's beneficiary or agent or any lender, investor or purchaser may rely upon the certificate as prepared and delivered to Tenant and Tenant shall be bound to Landlord and any such actual or prospective purchaser or mortgagee by all of the statements contained in any such certificate delivered on behalf of Tenant absent manifest error.

ARTICLE XVII
SURRENDER

17.1 Surrender. Tenant agrees to deliver and surrender possession of the Leased Premises to Landlord upon the expiration or earlier termination of the Lease Term, broom-clean and in as good condition and repair as at the commencement of the Lease Term, ordinary wear and tear (after taking into account Landlord's and Tenant's repair and maintenance obligations hereunder) and casualty for which Tenant shall not have any restoration obligation alone excepted, subject to any alterations which shall remain in the Leased Premises in accordance with the terms of this Lease, and to deliver all of the keys and access cards to Landlord or its agent.

17.2 Notice to Quit. TENANT SHALL SURRENDER THE LEASED PREMISES TO LANDLORD UPON THE EXPIRATION OR EARLIER TERMINATION OF THE LEASE TERM, WITHOUT NOTICE OF ANY KIND, AND TENANT WAIVES ALL RIGHT TO ANY SUCH NOTICE AS MAY BE PROVIDED UNDER ANY LAWS NOW OR HEREAFTER IN EFFECT IN PENNSYLVANIA, INCLUDING, WITHOUT LIMITATION, THE LANDLORD AND

TENANT ACT OF 1951, ACT OF APRIL 6, 1951, AS AMENDED.

17.3 Removal of Property; Restoration of Leased Premises. All alterations, additions, fixtures and other property within the Leased Premises upon the expiration or termination of the Lease Term shall remain for the benefit of Landlord after the Lease Term unless Landlord shall direct that the same be removed, in which event Tenant shall remove the same as provided in this Lease. If, at the time that Tenant requests Landlord's consent to make alterations or additions to, or install fixtures in, the Leased Premises, Tenant also requests Landlord's determination as to whether any such alterations, additions, fixtures will be required to be removed by Tenant at the expiration or earlier termination of this Lease ("Tenant's Removal Notice"), Landlord shall provide a determination, in writing, at such time. If Landlord fails to notify Tenant within ten (10) days of Landlord's receipt of Tenant's Removal Notice whether Tenant shall be required to remove any such alterations, additions, fixtures at the expiration or earlier termination of this Lease, it shall be assumed that Landlord shall not require the removal of the subject alterations, additions or fixtures. Otherwise, at Landlord's request, made no later than thirty (30) prior to the expiration or earlier termination of the Lease Term, Tenant shall remove all alterations which may have been made to the Leased Premises by Tenant (except those which Landlord may designate in writing [or be deemed to have designated] at the time of approval as not requiring removal), as well as all fixtures, equipment, and signage which may have been installed or placed therein or on the Property by Tenant, and Tenant shall repair any damage caused by the erection or removal of any such fixtures, equipment, or signage and restore the Leased Premises or other portion of the Property to its original condition, all in a workmanlike fashion as Landlord may direct. If Tenant shall not have removed all equipment, furniture, trade fixtures or other personal property, whether owned by Tenant or other parties, as of the expiration or earlier termination of the Lease Term, Landlord may (a) remove and store the same at the expense of Tenant or sell the same on behalf of Tenant at public or private sale in such manner as is commercially reasonable, with any proceeds thereof to be first applied to the costs and expenses, including attorney's fees, of the storage and sale and the payment of any amounts owed by Tenant under this Lease, or (b) treat the same as abandoned property and remove and claim or dispose of the same in such manner as Landlord may elect, all at the expense of Tenant. Notwithstanding anything contained herein to the contrary, in no event shall Tenant be required to remove the Landlord's Work or Tenant Improvements upon the expiration or earlier termination of the Lease Term.

17.4 Posting Signs. Landlord, without hindrance by Tenant, may post "For Rent" signs at or about the exterior of the Leased Premises during the last six (6) months of the Lease Term, and may post "For Sale" signs at or about the Building at any time.

ARTICLE XVIII
DEFAULT AND REMEDIES

18.1 Default. If (a) Tenant shall fail to pay any Rent or any other sum provided for under this Lease on or before the date that the same shall have become due and payable and such failure shall continue for five (5) days following receipt of written notice from Landlord; provided, that Tenant shall not be entitled to more than two (2) such written notices in any twelve (12) month period, or (b) Tenant shall vacate or abandon the Leased Premises without continuing to pay Rent, or (c) Tenant shall assign this Lease or sublet the whole or any part of the Leased Premises in violation of this Lease or permit any other person to occupy the whole or any part of the Leased Premises in violation of this Lease, or (d) Tenant shall fail to maintain any insurance pursuant to the terms of this Lease and such failure shall not be cured within five (5) days after written notice thereof from Landlord, or (e) bankruptcy or other insolvency proceedings shall be instituted by Tenant, or (f) bankruptcy proceedings shall be instituted against Tenant which are not withdrawn or dismissed within thirty (30) days after the institution of said proceedings, or (g) an assignment shall be made by Tenant for the benefit of creditors by legal proceedings or otherwise, or (h) Tenant shall fail to comply with any provision of Articles IV, VII or X of this Lease and such failure shall not be cured within five (5) days after written notice thereof from Landlord, or (i) Tenant shall breach or fail to perform any other term, condition or covenant of this Lease and such failure shall not be cured within thirty (30) days after written notice thereof from Landlord; provided, if Tenant shall commence the cure within such thirty (30) day period and proceed diligently thereafter to cure the failure specified in the notice but shall not be able to do so, then any such failure shall not be considered a Tenant Default so long as Tenant shall continue to exercise good faith diligent efforts to cure such failure and shall do so within a reasonable period of time, not to exceed ninety (90) days, then and in any such event Tenant shall be in default hereunder (each of the foregoing is hereinafter referred to as a "Tenant Default").

18.2 Remedies. In the event of any Tenant Default hereunder, Landlord may at its option declare the entire Annual Base Rent and Additional Rent on account of Increases in Real Estate Taxes and Increases in Operating Costs for the balance of the Lease Term (exclusive of any unexercised options) to be immediately due and payable, and the same shall thereupon at once become due and payable as if by the terms of this Lease it were all payable in advance. In such event, any item of Rent other than Annual Base Rent for any future period which shall be so declared immediately due and payable shall be paid based on an estimate thereof by Landlord for the balance of the Lease Term, and in making such estimate Landlord shall be entitled to assume that the amount of such item of Rent shall increase annually by three percent (3%) of the amount estimated for the preceding annual period. In addition, in the event of any Tenant Default hereunder, Landlord may exercise any one or more of the following remedies: (a) Landlord may declare this Lease terminated without any right on the part of Tenant to reinstate the same by payment or other performance of the condition or conditions violated, any law, usage or custom to the contrary notwithstanding; (b) Landlord may re-enter and take possession of the Leased Premises without terminating this Lease and may relet the Leased Premises for the account of Tenant; and (c) Landlord may pursue such other rights and remedies which may be available to Landlord at law or in equity, including damages notwithstanding any termination of this Lease. Landlord shall not have any obligation to treat any default as having been cured if the applicable grace period relating thereto as set forth in this Lease shall have elapsed. In the event that Rent shall be accelerated by reason of a default under this Lease, Landlord may nevertheless terminate this Lease and pursue other remedies as a result of such default, provided that Landlord shall not have the right to terminate this Lease by reason of such default after such accelerated Rent shall have been paid by Tenant unless such material non-monetary default is of a continuing nature and Tenant shall not have cured the same within the applicable grace period set forth in this Lease which shall commence after the payment of such accelerated Rent. Tenant hereby acknowledging that Landlord shall be entitled to lease any other property of Landlord without any obligation first to attempt to relet the Leased Premises. In the event that this Lease is terminated as a result of a Tenant Default at any time during this Lease, in addition to the other remedies set forth herein, Tenant shall immediately pay to Landlord an amount equal to any brokerage fees and any other lease concessions Landlord has incurred as a result of this Lease (amortized over the initial Lease Term, utilizing an interest rate of five and one-half percent (5.5%)).

18.3 Default Interest. Any Rent or other sum payable under this Lease shall bear interest at the rate per annum equal to the lesser of (a) five percent (5%) in excess of the rate per annum announced from time to time by PNC Bank, National Association, or its successor as its "prime rate" or similar rate, or (b) the highest rate permitted by law. Such rate of interest shall apply to such unpaid Rent and other sums until paid irrespective of whether judgment may have been entered therefor.

18.4 CONFESSION OF JUDGMENT FOR MONEY. UPON EACH AND EVERY BREACH OR DEFAULT HEREUNDER, TENANT HEREBY IRREVOCABLY AUTHORIZES AND EMPOWERS ANY ATTORNEY OF ANY COURT OF RECORD WITHIN THE COMMONWEALTH OF PENNSYLVANIA TO APPEAR FOR TENANT AND, WITH OR WITHOUT DECLARATION FILED, TO CONFESS A JUDGMENT OR SERIES OF JUDGMENTS AGAINST TENANT AND IN FAVOR OF LANDLORD OR ANY ASSIGNEE OF THIS LEASE, AS OF ANY TERM OR TERMS FOR ANY AND ALL SUMS DUE OR TO BECOME DUE BY REASON OF BREACH OR DEFAULT BY TENANT UNDER THE TERMS OF THIS LEASE, TOGETHER WITH COSTS OF SUIT AND AN ATTORNEY'S COMMISSION OF TEN PERCENT (10%) OF SUCH AMOUNT FOR COLLECTION, ON WHICH JUDGMENT OR JUDGMENTS A WRIT OR WRITS OF EXECUTION MAY ISSUE FORTHWITH, WITH RELEASE OF ALL ERRORS AND WITHOUT RIGHT OF APPEAL OR STAY OF EXECUTION, AND INQUISITION AND EXTENSION UPON ANY REAL ESTATE ARE HEREBY WAIVED, AND CONDEMNATION AGREED TO. A COPY HEREOF, VERIFIED BY AN AFFIDAVIT, SHALL BE FILED AT SAID PROCEEDINGS, AND IT SHALL NOT BE NECESSARY TO FILE THE ORIGINAL AS A WARRANT OF ATTORNEY. NO SINGLE EXERCISE OF THE FOREGOING WARRANT OR POWER TO CONFESS JUDGMENT SHALL BE DEEMED TO EXHAUST THE POWER, WHETHER OR NOT SUCH EXERCISE SHOULD BE HELD BY ANY COURT TO BE INVALID, VOIDABLE OR

VOID, AND THE POWER SHALL CONTINUE UNDIMINISHED AND MAY BE EXERCISED FROM TIME TO TIME AS LANDLORD SHALL ELECT, WHETHER FOR THE SAME SUMS FOR WHICH ONE OR MORE JUDGMENTS SHALL HAVE BEEN CONFESSED PURSUANT HERETO OR FOR ADDITIONAL SUMS AS WELL, UNTIL ALL SUMS PAYABLE OR THAT WHICH MAY BECOME PAYABLE BY TENANT HEREUNDER SHALL HAVE BEEN PAID IN FULL.

18.5 CONFESSION OF JUDGMENT FOR POSSESSION. UPON EACH AND EVERY BREACH OR DEFAULT HEREUNDER, TENANT HEREBY FURTHER AND ANY PERSON HOLDING UNDER TENANT IRREVOCABLY AUTHORIZES AND EMPOWERS ANY ATTORNEY AT ANY COURT OF RECORD WITHIN THE COMMONWEALTH OF PENNSYLVANIA EITHER IN ADDITION TO OR WITHOUT JUDGMENT FOR THE AMOUNT DUE ACCORDING TO THE TERMS OF THIS LEASE, TO APPEAR FOR TENANT AND CONFESS JUDGMENT FORTHWITH AGAINST TENANT AND IN FAVOR OF LANDLORD IN EJECTMENT FOR THE LEASED PREMISES AND THE IMMEDIATE ISSUING OF A WRIT OF POSSESSION FOR THE LEASED PREMISES PURSUANT TO WHICH LANDLORD MAY WITHOUT NOTICE RE-ENTER AND EXPEL TENANT AND ANY PERSON HOLDING UNDER TENANT FROM THE LEASED PREMISES. NO SINGLE EXERCISE OF THE FOREGOING WARRANT OR POWER TO CONFESS JUDGMENT SHALL BE DEEMED TO EXHAUST THE POWER, WHETHER OR NOT SUCH EXERCISE SHOULD BE HELD BY ANY COURT TO BE INVALID, VOIDABLE OR VOID, AND THE POWER SHALL CONTINUE UNDIMINISHED AND MAY BE EXERCISED FROM TIME TO TIME AS LANDLORD SHALL ELECT, AND, IN EACH CASE, THIS LEASE OR A TRUE COPY THEREOF SHALL BE A SUFFICIENT WARRANT OF ANY PERSON.

18.6 Cumulative Remedies. The rights and remedies of Landlord hereunder shall be cumulative and not exclusive, and Landlord shall not be put to any election of remedies. The rights and remedies of Landlord hereunder are in addition to and not in derogation of the rights and remedies otherwise available to Landlord by law or in equity or otherwise.

18.7 Survival. All representations, warranties, covenants, conditions and agreements of Tenant contained in this Lease shall survive the termination or expiration of the Lease Term, and Landlord shall have and enjoy all rights and remedies with respect thereto notwithstanding such expiration or termination. In addition, such representations, warranties, covenants, conditions and agreements and Landlord's rights and remedies with respect thereto shall survive Tenant's surrender and/or vacation of the Leased Premises, whether or not the same may be accepted by Landlord, and whether or not Landlord may thereafter re-let the Leased Premises.

18.8 Landlord Default. A "Landlord Default" shall occur hereunder in the event Landlord shall breach or fail to perform any term, condition or covenant of this Lease, and such failure shall not be cured within thirty (30) days after written notice thereof from Tenant. Notwithstanding the foregoing, in the event any such failure creates an Unsafe Condition (as such term is defined below), the foregoing thirty (30) day notice and cure period shall automatically be decreased to forty eight (48) hours. Except in connection with an Unsafe Condition, if Landlord's breach or failure is of a nature that it is not reasonably susceptible of being cured within a thirty (30) day period, Landlord shall have a commercially reasonable time to cure such failure prior to a Landlord Default occurring hereunder, so long as it commences good faith efforts to cure such failure within such thirty (30) day period and thereafter in good faith and with due diligence prosecutes such cure to completion. As used herein, the term "Unsafe Condition" shall mean a condition which may create an imminent risk of (i) material damage or destruction of property, or (ii) personal injury. In the event of a Landlord Default, as described above, Tenant shall have the right to pursue any remedies available to Tenant at law or in equity. Notwithstanding the foregoing, if the Landlord Default involves Landlord's non-structural repair and maintenance obligations to the Leased Premises as expressly stated in this Lease and such Landlord Default unreasonably and materially interferes with Tenant's ability to conduct its normal business operations at the Leased Premises or creates an Unsafe Condition, then Tenant, shall have the right, but not the obligation, to perform the nonstructural repair or maintenance obligation to the Leased Premises which Landlord failed to perform, provided Tenant provides Landlord with additional written notice at least two (2) days prior to performing such repair or maintenance obligation. The full amount of the reasonable costs and expenses so incurred by Tenant (the "Reimbursable Costs") shall be paid by Landlord to Tenant within thirty (30) days after written demand therefor (provided that such written demand is accompanied by reasonable documented evidence of the Reimbursable Costs).

18.9 Duty to Mitigate. In the event of any default hereunder, the non-defaulting party shall use commercially reasonable efforts to mitigate its damages; provided, however, with regard to Landlord's duty to mitigate damages by re-letting the Leased Premises to a replacement tenant suitable under the circumstances, such duty shall be deemed fulfilled so long as Landlord lists and reasonably markets the Leased Premises and subsequently deals with any tenant prospects in a reasonable manner. For the purpose of such reletting, Landlord may make repairs, changes, alterations or additions in or to the Leased Premises to the extent reasonably necessary to relet the Leased Premises; and (the cost of such repairs, changes, alterations or additions (in an amount not to exceed that which would have been required to place the Leased Premises in the same condition in which it is required to be surrendered hereunder), plus any reasonable brokerage and legal fees expended by Landlord in connection therewith, may be charged to and be payable by Tenant as: (a) additional rent hereunder, or (b) in the event the Lease has been terminated, as damages. Without limiting the foregoing, in no event shall Landlord's obligation to mitigate require Landlord to (i) prioritize the rental of the Leased Premises over any other space in the Building or any other Building, (ii) accept a proposed base rent or additional rent that is, in Landlord's sole discretion, unreasonable, or (iii) utilize efforts to find a replacement tenant for the Leased Premises which are in excess of those typically employed by Landlord to lease vacant space. Further, any breach of Landlord's duty to relet the Leased Premises as provided hereunder does not give rise to a cause of action by Tenant, but rather, will reduce Landlord's recovery against Tenant to the extent that damages reasonably could have been avoided if Landlord was obligated to mitigate and had properly exercised its above-described duty.

ARTICLE XIX
WAIVER

19.1 Waiver. The waiver by Landlord of any breach of any term, covenant or condition of this Lease to be performed by Tenant shall not be deemed to be a waiver of any subsequent breach of this Lease nor shall any waiver authorize the nonobservance of any other occurrence of the same or of any other covenant or condition thereof, nor shall the acceptance of rent by the Landlord at any time when the Tenant is in default under any covenant or condition hereby be construed as a waiver of any such default. To be effective, a waiver of any such breach or default by Tenant hereunder must be in writing signed by Landlord.

ARTICLE XX
CONDEMNATION

20.1 Condemnation. In the event that the Leased Premises or the Property, or such portion thereof as shall prevent, in Landlord's sole good faith judgment, any reasonable use of the Leased Premises by Tenant, shall be taken or condemned for any public or quasi-public use or purpose by a competent authority in expropriation proceedings, or by any right of eminent domain, or conveyed to such competent authority in lieu of such taking or condemnation, then this Lease shall terminate as of the date title vests pursuant to such taking or conveyance. The entire compensation or award attributable to any taking or condemnation of the Property or any portion thereof, or the consideration for such conveyance, shall belong to Landlord without any deduction therefrom for any present or future estate or other right of Tenant, and Tenant hereby assigns to Landlord all its right, title and interest in and to any such award. Tenant shall, however, be entitled to such award as may be allowed for moving expenses, fixtures and other equipment installed by it and any other compensation allowed under the laws of the Commonwealth of Pennsylvania, but only if such award or other compensation shall be in addition to the award otherwise available to or for the benefit of Landlord. If Tenant's business is not so materially and substantially curtailed by the taking then this Lease shall continue as to that portion of the Leased Premises remaining after the taking with the Rent being reduced pro-rata for the square footage of the Leased Premises taken.

ARTICLE XXI
NOTICES

21.1 Notice Addresses. Whenever in this Lease there shall be required or permitted that notice or demand be given or served to either party to this Lease, such notice or demand shall be given in writing, by certified or registered U.S. Mail, return receipt requested, by recognized overnight courier with receipted delivery, or by hand delivery, to the applicable address or addresses set forth herein, or to such other addresses as may be designated by notice given pursuant to this section. All notices shall be deemed given when delivered to the applicable address or addresses or when such delivery is refused, as indicated by return receipts or other evidence:

To Landlord: 350 Technology Drive Partners, LLC
965 Greentree Road, Suite 400
Pittsburgh, PA 15220
Attn: James D. Scalo

with a copy to:

Burns Scalo Management LLC
965 Greentree Road, Suite 400
Pittsburgh, PA 15220
Attn: Christie Reiber

To Tenant: Before the Commencement Date:

700 Technology Drive
Pittsburgh, PA 15219 The Premises
Attention: Sam Backenroth

After the Commencement Date:

The Premises
Attention: Sam Backenroth

ARTICLE XXII
NON-RECORDATION

22.1 Non-Recordation. Neither this Lease nor any memorandum hereof or reference hereto shall be recorded by Tenant.

ARTICLE XXIII
FINANCIAL STATEMENTS

23.1 Financial Statements. Provided that Tenant is not a public company, or the subsidiary of a public company, within thirty (30) days after the receipt of written request from Landlord, from time to time, Tenant shall deliver to Landlord its most recent financial statements as well statements of income, retained earnings and changes in financial position of Tenant for the most recent fiscal year and a balance sheet of Tenant as of the close of such fiscal year, all in reasonable detail, such year-end financial statements to be prepared, or reviewed, by an independent certified public accountant of recognized standing. Tenant represents and warrants that the financial statements delivered to Landlord shall be true and accurate. Notwithstanding the foregoing, Landlord shall not request financial statements more than twice in each consecutive one (1) year period during the Lease Term. At Tenant's request, Landlord shall enter into a confidentiality agreement with Tenant, which agreement is reasonably acceptable to Landlord and covers confidential financial information provided by Tenant to Landlord.

ARTICLE XXIV
EXONERATION

24.1 Exoneration. Neither Landlord nor any member, partner or shareholder in Landlord, nor any director, officer or other party with interests in Landlord or any such member, partner or shareholder shall be subject to personal liability beyond Landlord's interest in the Property for any of the covenants, representations or warranties of Landlord pursuant or related to this Lease, or for any negligent or other acts or omissions relating to the Leased Premises or any other portion of the Property or any condition or use thereof or event or activity therein or thereon, and except to the extent recourse shall be further limited by the other terms of this Lease, Tenant shall look solely to the interest of Landlord in the Property for the satisfaction of the remedies of Tenant for any such matters including any default by Landlord hereunder. For purposes hereof, "Landlord's interest in the Property" shall include rents due from tenants, insurance proceeds, sales proceeds and proceeds from condemnation or eminent domain proceedings. Nothing in this Section shall be construed to impose liability on Landlord which is waived or otherwise limited by the other terms of this Lease.

ARTICLE XXV
BINDING EFFECT

25.1 Binding Effect. Except as herein otherwise expressly provided, the terms, conditions, covenants and provisions hereof shall be binding upon and shall inure to the benefit of the heirs, executors, administrators, successors and assigns of Landlord and Tenant, respectively. The references contained in this Lease to successors and assigns of Tenant shall not be construed to constitute a consent by Landlord to any assignment of this Lease by operation of law or otherwise.

ARTICLE XXVI

CONSTRUCTION

26.1 Captions. The captions of the Articles throughout this Lease are for convenience and reference only, and the words contained therein shall in no way be held to explain, modify, amplify or aid in the interpretation, construction or meaning of the terms, conditions, covenants and provisions of this instrument.

26.2 References. As used herein, the singular shall include the plural; the use of masculine, feminine or neuter genders shall be deemed to include all genders. Any reference to the rights and authority of Landlord herein shall include such of Landlord's agents, servants, or employees to whom Landlord may delegate its rights or authority, and shall also include any mortgagee of Landlord which has reserved or to whom Landlord has delegated any such right or authority.

26.3 Rules of Construction. Both parties acknowledge and agree that this Lease has been freely negotiated, and accordingly, this Lease shall be construed and interpreted without regard to any presumption or rule of construction against Landlord as the drafter of this Lease or otherwise.

ARTICLE XXVII
ENTIRE AGREEMENT; AMENDMENTS; DELIVERY

27.1 Entire Agreement. This Lease, together with all addenda, schedules and Exhibits hereto, contains the entire agreement between the parties hereto, and Tenant acknowledges and agrees that no agent, representative, salesman or officer of Landlord has authority to make or has made any statement, agreement representation, either oral or written, in connection therewith, modifying, adding or changing the terms, conditions, covenants and provisions herein set forth. No dealings between the parties or custom or usage of trade shall be permitted to contradict, vary, add to or modify the terms, conditions, covenants and provisions hereof. No modifications of or amendment of this Lease shall be binding unless the same shall be in writing and signed by all of the parties hereto.

27.2 Amendments. Tenant agrees to execute any and all reasonable amendments to this Lease which may be required pursuant to the terms of any Covenants, as the same may be amended from time to time; provided that any such amendment shall not materially or negatively impact Tenant's use of the Leased Premises. Tenant shall execute such amendment within thirty (30) days after request or within such shorter period as may be required by such Covenants.

27.3 Counterparts; Delivery. This Lease may be executed in any number of counterparts, and by each of the parties on separate counterparts, each of which, when so executed, shall be deemed an original, but all of which shall constitute but one and the same instrument. Delivery of an executed counterpart of this Lease by electronic delivery shall be equally as effective as delivery of a manually executed counterpart of this Lease. Any party delivering an executed counterpart of this Lease by electronic delivery shall also deliver a manually executed counterpart of this Lease, but the failure to deliver a manually executed counterpart shall not affect the validity, enforceability or binding effect of this Lease.

ARTICLE XXVIII
GOVERNING LAW; PATRIOT ACT

28.1 Governing Law. This Lease and the performance hereof shall be governed, interpreted, construed and regulated by the laws of the Commonwealth of Pennsylvania.

28.2 Patriot Act. Tenant represents that neither Tenant nor its constituents or affiliates are in violation of any Governmental Rules relating to terrorism or money laundering, including the Executive Order and/or the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (Public Law 107-56, the "Patriot Act").

ARTICLE XXIX
PARTIAL INVALIDITY

29.1 Partial Invalidity. If any term, covenant, condition or provision of this Lease, or the application thereof to any person or circumstance, shall at any time or to any extent be or become invalid or unenforceable, nevertheless the remaining terms, covenants, conditions and provisions of this Lease, and the application thereof shall not be affected thereby and each remaining term, covenant, condition and provision of this Lease shall be and remain valid and enforceable to the fullest extent permitted by law.

ARTICLE XXX
BROKERAGE COMMISSION

30.1 Brokerage Commission. Landlord and Tenant each represent and warrant to the other that there were no real estate agents or brokers involved with the introduction of the parties or in the negotiation and execution of this Lease other than Burns Scalo Brokerage LLC and Hanna Langholz Wilson Ellis whose compensation shall be paid by Landlord in accordance with such party's agreement with such brokers. Landlord and Tenant shall each hold the other harmless from any claims for commissions, fees or compensation for this Lease transaction by any other person or entity claiming to have acted as agent, representative or broker for any of the parties to this Lease. The terms of this Section 30.1 shall survive the expiration or earlier termination of this Lease.

ARTICLE XXXI
[INTENTIONALLY DELETED]

ARTICLE XXXII
FORCE MAJEURE

32.1 Force Majeure. The time periods for the parties' performance of their respective obligations under this Lease (except with respect to Tenant's obligation to pay Rent) shall be extended for periods of time during which their performance is prevented due to extraordinary circumstances beyond the party's control, including without limitation, strikes, embargoes, governmental regulations and orders, labor or material shortages, acts of God, casualty, weather, war or other strife ("Force Majeure").

ARTICLE XXXIII
HOLDING OVER BY TENANT

33.1 Holding Over. If Tenant shall hold over at the expiration or termination of the Lease Term, such tenancy shall be deemed, at Landlord's option elected in writing by Landlord at any time during such period, a month-to-month tenancy or a tenancy at sufferance, and in the absence of such written election by Landlord, shall be a tenancy at the sufferance. During such month-to-month tenancy or tenancy at sufferance, Tenant agrees to be bound by all the terms and conditions hereof and agrees to pay to

Landlord, in addition to all other Rent, an Annual Base Rent in the amount of one and one-half times (150%) of the Annual Base Rent (the applicable Base Rent for such calculations being the Annual Base Rent which shall have been in effect for the last month of the Lease Term prior to such expiration or termination), the parties agreeing that such sum shall be deemed a reasonable sum for such tenancy. If any holdover exceeds thirty (30) days and Landlord has given Tenant written notice that holding over beyond thirty (30) days will result in Tenant being liable for consequential damages, then Tenant shall be liable for consequential damages commencing with the date which is the later to occur of the expiration of such 30-day period or 15 days after Landlord gives such notice. Nothing herein shall limit any damages Landlord may incur for Tenant's trespass, damage to the Property, loss of replacement Tenants or otherwise.

ARTICLE XXXIV
RIGHT OF FIRST OFFER

34.1 Right of First Offer. Subject to the written rights of other tenants in the Building existing as of the date hereof, which rights shall be superior to those of Tenant under this Section 34.1, at all times during the Term, Tenant shall have a right of first offer to lease any space located in the Building becoming available for lease (the "Offer Space"). Landlord will provide Tenant with written notice (each, an "Offer Notice") of any Offer Space prior to negotiating or extending an offer to lease such space to any third party. Tenant shall have fifteen (15) days following receipt of such Offer Notice in which to elect in writing (an "Election Notice") to proceed with negotiating a lease of such Offer Space with Landlord. If Tenant fails to deliver to Landlord an Election Notice within such fifteen (15) day period, then Tenant shall be deemed to have waived its right to negotiate a lease with Landlord with respect to such Offer Space and Landlord may proceed to negotiating or extending an offer to lease the Offer Space to third parties. In such event, if Landlord fails to enter into a lease with a third party for such Offer Space within one hundred eighty (180) days of the date of the Offer Notice, then Tenant shall again have a right of first offer to negotiate a lease of such Offer Space in accordance with the terms of this Section 34.1. In the event Tenant timely delivers Landlord an Election Notice, then Landlord shall exclusively negotiate a lease of the Offer Space with Tenant in good faith. In the event that Landlord and Tenant are unable to reach mutually satisfactory lease terms for such Offer Space within twenty (20) days after Landlord's receipt of Tenant's Election Notice, Landlord may proceed to negotiating or extending an offer to lease the Offer Space to third parties. In such event if Landlord fails to enter into a lease with a third party for such Offer Space within one hundred eighty (180) days of the date of the Election Notice, then Tenant shall again have a right of first offer to negotiate a lease of such Offer Space in accordance with the terms of this Section 34.1.

[SIGNATURES APPEAR ON FOLLOWING PAGE]

ARTICLE XXXV
TENANT ACKNOWLEDGEMENT

35.1 Tenant's Understanding. **TENANT ACKNOWLEDGES THAT TENANT UNDERSTANDS THE CONFESSIONS OF JUDGMENT AUTHORIZED IN SECTIONS 184 AND 18.5 OF THIS LEASE; THAT THIS TRANSACTION IS COMMERCIAL AND NONRESIDENTIAL IN NATURE; AND THAT TENANT WAIVES ANY RIGHT TO A HEARING OR TRIAL IN COURT WHICH WOULD OTHERWISE BE REQUIRED BY LAW AS A PRIOR CONDITION TO LANDLORD'S OBTAINING THE JUDGMENTS AUTHORIZED IN SECTIONS 18.4 AND 18.5.**

IN WITNESS WHEREOF, and intending to be legally bound hereby, the parties have caused this Lease to be duly executed by their authorized agents and officers as of the day and year first above written.

LANDLORD:

350 TECHNOLOGY DRIVE PARTNERS, LLC,
a Pennsylvania limited liability company

By: 350 TECHNOLOGY DRIVE MANAGER, LLC
a Pennsylvania limited liability company, its Manager

By: /s/ James D. Scalo
James D. Scalo, its sole member

TENANT:

NEUBASE THERAPEUTICS, INC.,
a Delaware corporation

By: /s/ Dietrich A. Stephan
Name: Dietrich A. Stephan
Title: Chairman and CEO

EXHIBIT A

Depiction of Leased Premises

EXHIBIT B

Work Letter

EXHIBIT C

Form of Acknowledgement of Commencement Date

EXHIBIT D

Building Rules and Regulations

EXHIBIT E

Parking Agreement

EXHIBIT F

Cleaning Specifications

EXHIBIT G

FORM SNDA

Exhibit 21.1

List of Subsidiaries of NeuBase Therapeutics, Inc.

1. NeuBase Corporation (incorporated in Delaware)
2. Ohr Opco, Inc. (incorporated in Delaware)
3. Ohr Pharma, LLC (organized in Delaware)

Exhibit 23.1

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in the Registration Statements of NeuBase Therapeutics, Inc. and subsidiaries (the "Company") on Form S-3 (File No. 333-233767) and Form S-8 (File Nos. 333-215382 and 333-233346) of our report dated December 23, 2020 with respect to our audits of the consolidated financial statements of the Company as of September 30, 2020 and 2019 and for each of the two years in the period ended September 30, 2020, which report is included in this Annual Report on Form 10-K of the Company for the fiscal year ended September 30, 2020.

/s/ Marcum LLP

Marcum LLP
New York, NY
December 23, 2020

Exhibit 31.1

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Dietrich Stephan, Ph.D., certify that:

1. I have reviewed this Annual Report on Form 10-K of NeuBase Therapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c. Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d. Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

   a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

   b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: December 23, 2020

By: /s/ Dietrich Stephan
Dietrich Stephan, Ph.D.
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Sam Backenroth, certify that:

1. I have reviewed this Annual Report on Form 10-K of NeuBase Therapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: December 23, 2020

By: /s/ Sam Backenroth
Sam Backenroth
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER AND PRINCIPAL FINANCIAL OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of NeuBase Therapeutics, Inc. (the "Company") for the period ended September 30, 2020 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to their knowledge that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

By: /s/ Dietrich Stephan, Ph.D.	By: /s/ Sam Backenroth
Dietrich Stephan, Ph.D.	Sam Backenroth
President and Chief Executive Officer	*Chief Financial Officer*
(Principal Executive Officer)	(Principal Financial and Accounting Officer)
December 23, 2020	December 23, 2020

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

This certification accompanies the Report, is not deemed filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Report), irrespective of any general incorporation language contained in such filing.