As filed with the Securities and Exchange Commission on November 7, 2023.

Registration No. 333-

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

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

FibroBiologics, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**2834**	**86-3329066**
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

455 E. Medical Center Blvd.
Suite 300
Houston, Texas 77598
(281) 671-5150
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Pete O'Heeron
Chief Executive Officer
FibroBiologics, Inc.
455 E. Medical Center Blvd.
Suite 300
Houston, Texas 77598
(281) 671-5150
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

Brian Fenske
Norton Rose Fulbright US LLP
1301 McKinney Street
Suite 5100
Houston, Texas 77010
(713) 651-5151

Pete O'Heeron
Chief Executive Officer
FibroBiologics, Inc.
455 E. Medical Center Blvd.
Suite 300
Houston, Texas 77598
(281) 671-5150

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

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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 7(a)(2)(B) of the Securities Act. □

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

amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission acting pursuant to said Section 8(a), may determine.

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

SUBJECT TO COMPLETION, DATED , 2023

Shares

FibroBiologics, Inc.

Common Stock

This prospectus relates to the registration of the resale of up to shares of our common stock by our stockholders identified in this prospectus, or the Registered Stockholders, in connection with our direct listing, or the Direct Listing, on the Nasdaq Global Market, or Nasdaq. Unlike an initial public offering, the resale by the Registered Stockholders is not being underwritten on a firm-commitment basis by any investment bank. The Registered Stockholders may, or may not, elect to sell their shares of common stock covered by this prospectus, as and to the extent they may determine. The Registered Stockholders may offer, sell or distribute all or a portion of the shares of common stock hereby registered publicly or through private transactions at prevailing market prices or at negotiated prices. If the Registered Stockholders choose to sell their shares of common stock, we will not receive any proceeds from the sale of shares of common stock by the Registered Stockholders.

Our board of directors and our stockholders have each approved on October 6, 2023 a 1-for-4 reverse stock split of all classes of our issued and outstanding capital stock, or the Reverse Stock Split. On October 31, 2023, we filed an amended and restated certificate of incorporation with the State of Delaware to immediately effect the Reverse Stock Split. All share and per share information in this prospectus have been adjusted to reflect the Reverse Stock Split, unless otherwise stated.

No public market for our common stock currently exists, and our shares of common stock have a limited history of trading in private transactions. In December 2022, we issued an aggregate of the equivalent of 381,658 shares of Series B Preferred Stock to investors in a private placement, at a price of the equivalent of $6.76 per share as to the equivalent of 318,049 shares, with the remaining equivalent of 63,609 shares being bonus shares. From February 2023 through April 2023, we issued an aggregate of the equivalent of 890,310 shares of Series B Preferred Stock to investors in a Regulation Crowdfunding offering, at a price of the equivalent of $6.76 per share as to the equivalent of 724,937 shares, with the remaining equivalent of 143,225 shares and equivalent of 22,148 shares being bonus shares and commission payment shares, respectively. In March and April 2023, we issued the equivalent of 1,680,084 shares of Series B Preferred Stock to investors in private placements, at a price of the equivalent of $6.76 per share as to the equivalent of 1,527,349 shares, with the remaining equivalent of 152,735 shares being bonus shares. In April 2023 through September 2023, we issued the equivalent of 74,922 shares of Series B-1 Preferred Stock to investors in a private placement, at prices ranging from the equivalent of $18.00 to the equivalent of $20.00 per share as to the equivalent of 64,070 shares, with the remaining equivalent of 10,852 shares being bonus shares. In connection with a portion of such private placement of our Series B-1 Preferred Stock, we also agreed to issue warrants, exercisable for a period of three years from their issuance date, to purchase an aggregate of the equivalent of an aggregate of 8,890 shares of our common stock at an exercise price of the equivalent of $20.00 per share.

Upon the Direct Listing, all of our then outstanding shares of our Series B Preferred Stock and Series B-1 Preferred Stock will automatically convert, without the payment of additional consideration by or to the holders thereof, into shares of our common stock on a one-for-one basis.

Recent purchase prices of our common stock in private transactions may have little or no relation to the opening public price of our shares of common stock on Nasdaq or the subsequent trading price of our shares of common stock on Nasdaq. For more information, see "*Sale Price History of Our Capital Stock.*" Further, the listing of our common stock on Nasdaq, without a firm-commitment underwritten offering, is a novel method for commencing public trading in shares of our common stock and, consequently, the trading volume and price of shares of our common stock may be more volatile than if shares of our common stock were initially listed in connection with an initial public offering underwritten on a firm-commitment basis.

On the day that our shares of common stock are initially listed on Nasdaq, Nasdaq will begin accepting, but not executing, pre-opening buy and sell orders and will begin to continuously generate the indicative Current Reference Price (as defined below) on the basis of such accepted orders. The Current Reference Price is calculated each second and, during a 10-minute "Display Only" period, is disseminated, along with other indicative imbalance information, to market participants by Nasdaq on its NOII and BookViewer tools. Following the "Display Only" period, a "Pre-Launch" period begins, during which Maxim Group LLC, or the Advisor, in its capacity as our financial advisor, must notify Nasdaq that our shares are "ready to trade." Once the Advisor has notified Nasdaq that our shares of common stock are ready to trade, Nasdaq will confirm the Current Reference Price for our shares of common stock, in accordance with Nasdaq rules. If the Advisor then approves proceeding at the Current Reference Price, the applicable orders that have been entered will be executed at such price and regular trading of our shares of common stock on Nasdaq will commence, subject to Nasdaq conducting validation checks in accordance with Nasdaq rules. Under Nasdaq rules, the "Current Reference Price" means: (i) the single price at which the maximum number of orders to buy or sell can be matched; (ii) if there is more than one price at which the maximum number of orders to buy or sell can be matched, then it is the price that minimizes the imbalance between orders to buy or sell (i.e. minimizes the number of shares that would remain unmatched at such price); (iii) if more than one price exists under (ii), then it is the entered price (i.e. the specified price entered in an order by a customer to buy or sell) at which our shares of common stock will remain unmatched (i.e. will not be bought or sold); and (iv) if more than one price exists under (iii), a price determined by Nasdaq in consultation with the Advisor in its capacity as our financial advisor. In the event that more than one price exists under (iii), the Advisor will exercise any consultation rights only to the extent that it can do so consistent with the anti-manipulation provisions of the federal securities laws, including Regulation M, or applicable relief granted thereunder. The Registered Stockholders will not be involved in Nasdaq's price-setting mechanism, including any decision to delay or proceed with trading, nor will they control or influence the Advisor in carrying out its role as a financial adviser. The Advisor will determine when our shares of common stock are ready to trade and approve proceeding at the Current Reference Price primarily based on considerations of volume, timing and price. In particular, the Advisor will determine, based primarily on pre-opening buy and sell orders, when a reasonable amount of volume will cross on the opening trade such that sufficient price discovery has been made to open trading at the Current Reference Price. For more information, see "*Plan of Distribution*" beginning on page 126 of this prospectus.

We have applied to list our common stock on the Nasdaq Global Market under the symbol "FBLG." We expect our common stock to begin trading on Nasdaq on or about , 2023.

If our Nasdaq application is not approved or we otherwise determine that we will not be able to secure the listing of our common stock on Nasdaq, we will not complete this Direct Listing. This listing is a condition to the offering. No assurance can be given that our Nasdaq application will be approved and that our common stock will ever be listed on Nasdaq. If our listing application is not approved by Nasdaq, we will not be able to consummate the offering and we will terminate this Direct Listing.

Upon completion of this offering, our founder and Chief Executive Officer, Pete O'Heeron, will collectively beneficially own approximately 59% of the voting power of our outstanding voting securities and we will be a "controlled company" within the meaning of the listing rules of The Nasdaq Stock Market LLC. We do not intend to rely on any exemptions from the corporate governance requirements that are available to controlled companies.

We are an "emerging growth company" and a "smaller reporting company" as defined under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements for this prospectus and may elect to do so in future filings. See "*Prospectus Summary—Implications of Being an Emerging Growth Company and a Smaller Reporting Company*."

Investing in our common stock involves a high degree of risk. See the "*Risk Factors*" section beginning on page 9 of this prospectus for the risks and uncertainties you should consider before investing in our common stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

Prospectus dated , 2023

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You should rely only on the information contained in this prospectus or contained in any free writing prospectus filed with the Securities and Exchange Commission. Neither we nor any of the Registered Stockholders have authorized anyone to provide any information different from, or in addition to, the information contained in this prospectus and in any free writing prospectuses we have prepared or that have been prepared on our behalf or to which we have referred you. Neither we nor any of the Registered Stockholders take responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The Registered Stockholders are offering to sell, and seeking offers to buy, shares of their common stock only under the circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is current only as of its date, regardless of the time of delivery of this prospectus or of any sale of our common stock. Our business, financial condition, results of operations and prospects may have changed since such date.

For investors outside the United States: Neither we nor any of the Registered Stockholders have done anything that would permit the use of or possession or distribution of this prospectus or any related free writing prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of our common stock by the Registered Stockholders and the distribution of this prospectus outside the United States.

ABOUT THIS PROSPECTUS

This prospectus is a part of a registration statement on Form S-1 that we filed with the Securities and Exchange Commission, or the SEC, using a "shelf" registration or continuous offering process. Under this process, the Registered Stockholders may, from time to time, sell the common stock covered by this prospectus in the manner described in the section titled "*Plan of Distribution*." Additionally, we may provide a prospectus supplement to add information to, or update or change information contained in, this prospectus, including the section titled "*Plan of Distribution*". You may obtain this information without charge by following the instructions under the "*Where You Can Find Additional Information*" section of this prospectus. You should read this prospectus and any prospectus supplement before deciding to invest in our common stock.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed or will be filed as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described under "*Where You Can Find Additional Information*."

PROSPECTUS SUMMARY

This summary highlights select information contained elsewhere in this prospectus and does not contain all the information you should consider before making an investment decision. You should read the entire prospectus carefully, including the sections entitled "Risk Factors," "Cautionary Note Regarding Forward-Looking Statements," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and the accompanying notes included elsewhere in this prospectus before making an investment decision. Unless otherwise indicated or the context otherwise requires, all references in this prospectus to "we," "us," "our," the "Company," "FibroBiologics" and similar terms refer to FibroBiologics, Inc.

Overview

We are a clinical-stage cell therapy company focused on developing and commercializing fibroblast-based therapies for patients suffering from chronic diseases with significant unmet medical needs, including degenerative disc disease, multiple sclerosis, wound healing, and certain cancers, and for potential extension of life applications including thymic and splenic involution reversal.

We were formed in April 2021 as a Texas limited liability company under the name FibroBiologics, LLC, and converted to a Delaware corporation in December 2021 under the name Fibrobiologics, Inc. On April 12, 2023, we changed our name to FibroBiologics, Inc. In connection with our formation, we issued shares of our Series A Preferred Stock, or the Series A Preferred Stock, to our then parent, SpinalCyte LLC (doing business as FibroGenesis), or FibroGenesis, in return for rights to certain intellectual property through a patent assignment agreement and an intellectual property cross-licensing agreement. Developing the intellectual property obtained from FibroGenesis was the basis for our formation. Prior to our inception, preclinical research and development related to the transferred intellectual property took place under FibroGenesis.

Fibroblasts Technology Platform

Fibroblasts and stem cells are the only two cell types in the human body that can regenerate tissue and organs. Studies have indicated that mesenchymal stem cells and fibroblasts share many surface markers in common, and can differentiate into many cells including adipocytes, chondrocytes, osteoblasts, hepatocytes, and cardiomyocytes, and can regulate the immune system. However, transcriptomic and epigenetic studies have indicated a clear difference between the two cell types.

Fibroblasts comprise the main cell type of connective tissue, possessing a spindle-shaped morphology, whose classical function has historically been believed to produce an extracellular matrix responsible for maintaining the structural integrity of the tissue. Fibroblasts also play an important role in maintaining stem cell niches in organs and are involved in every stage of wound healing.

Fibroblasts are favorable to stem cells as a cell therapy treatment platform because fibroblasts:

- can be non-invasively harvested from a variety of skin donors from surgical procedures such as tummy tuck flaps or simple biopsy punch;
- have a faster doubling time in culture than stem cells;
- possess superior immune modulatory activity compared with stem cells;
- exhibit enhanced ability to produce regenerative cytokines and growth factors compared with stem cells; and
- are more economical to isolate, culture and expand compared with stem cells because fibroblasts do not require the use of expensive tissue culture media and additives.

Studies have demonstrated that allogeneic fibroblasts, much like mesenchymal stem cells, are immune-privileged and do not provoke an immune response *in vitro* and *in vivo*. If autologous fibroblasts were required instead, it would mean that cells would have to be harvested from each patient, processed and cultured, and then administered to the same patient, which would be more costly and inefficient. Because allogeneic fibroblasts do not cause an immune response, we are planning to build our own current Good Manufacturing Practices, or cGMP, manufacturing facility to source allogeneic fibroblast cells for clinical testing of our product candidates and for commercial sales if our product candidates receive marketing approval.

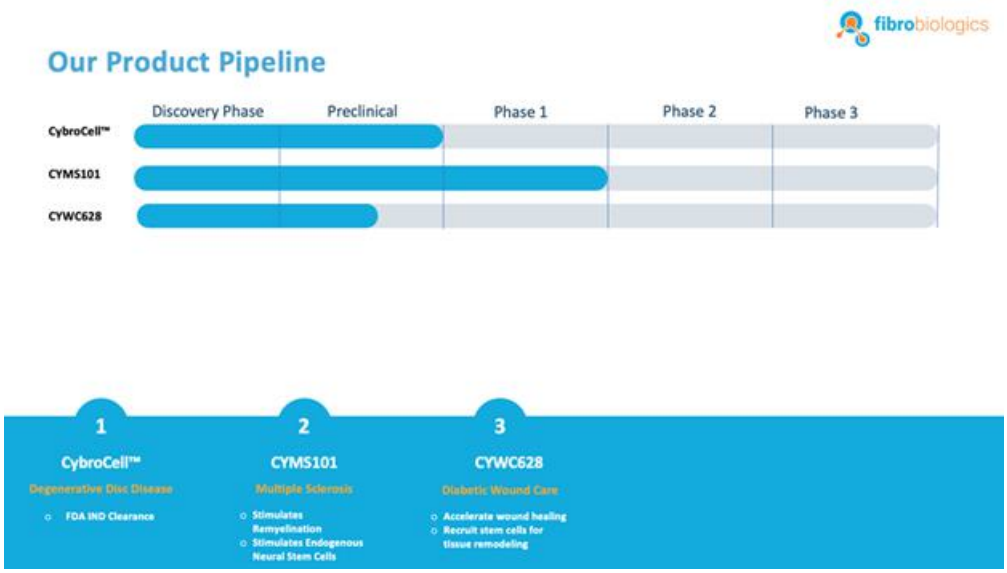
To date, however, no fibroblast therapy products have been approved and there have only been a few clinical trials involving fibroblasts. The costs to develop, manufacture, and commercialize product candidates utilizing our fibroblasts technology platform may exceed our estimates. Furthermore, the biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary and novel products and product candidates so any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future. Additional information regarding risks and uncertainties relating to our product candidates technology and business are set forth in the sections titled "—*Summary of Risk Factors*" and "*Risk Factors*" in this prospectus.

Our Management Team and Oversight

We have assembled an executive leadership team comprised of our founder, chief executive officer and chairperson of our board of directors, our chief scientific officer, and our chief financial officer, with successful track records in startup entrepreneurial companies and in the life sciences industry. Our executive leadership team works under the oversight of our board of directors who are recognized leaders with hands-on industry experience. We also have a team of world-renowned scientists with relevant expertise on our scientific advisory board to help guide our research and development efforts.

Our Current Pipeline

We have a pipeline of product candidates at various stages of development, including the following:



CybroCell™ for Degenerative Disc Disease: CybroCell™ is an allogeneic fibroblast cell-based therapy for degenerative disc disease This new technology is being designed as an alternative method for repairing the cartilage of the intervertebral disc (or any other articular cartilage). The method is based on using human dermal fibroblasts, or HDFs, which are forced to differentiate into chondrocyte-like cells *in vivo* using the mechanical force and intermittent hydrostatic pressure found in the spine, for chondrogenic differentiation of fibroblasts. We believe our solution will prove superior to existing treatments because we expect it will be less invasive, and will regenerate the disc, restore function and reduce pain without debilitating long-term effects. We have completed two rounds of animal studies. The results from the studies were positive and resulted in "first in human" trial approval in our investigational new drug, or IND, submission to the U.S. Food and Drug Administration, or FDA. We have received IND clearance from the FDA, conditional upon approval of our master cell bank, to run a Phase 1/2 clinical trial for patients suffering from degenerative disc disease. We will be conducting this trial within the United States. A timeline will be determined through discussions with the FDA.

CYMS101 for Multiple Sclerosis: We are developing CYMS101 as an allogeneic fibroblast cell-based therapy to treat multiple sclerosis, or MS. After completing animal studies using CYMS101 (allogeneic fibroblast cells), we received approval from Mexico to conduct clinical investigations using the fibroblast cell composition for patients with MS and have completed a Phase 1 clinical trial called "Feasibility Study of Tolerogenic Fibroblasts in Patients with Refractory Multiple Sclerosis." The study was conducted in five participants. The primary objective of the study was to assess safety, and the secondary objective was to assess efficacy. The results of the study for safety were no adverse effects during intravenous injection of the tolerogenic fibroblasts, no short or long-impact in complete blood count test during the 16-week monitoring period, and no short or long impact in electrocardiogram results during the 16-week monitoring period. In addition, the results of the study for efficacy included general improvement of Paced Auditory Serial Addition Test, or PASAT, score for all patients during the 16-week monitoring period, general improvement of 9-hole Peg test completion time for all patients during the 16-week testing period, no general improvement or deterioration noted with the Timed 25-Foot walk test, no general improvement or deterioration noted with Expanded Disability Status Scale, or EDSS, test, and no patient exhibited further deterioration during the trial. We are currently conducting further research to determine the mode of action of fibroblasts in oligodendrocyte expansion and expect to file an IND application for a Phase 2 clinical trial in MS. We will likely seek a strategic partner to collaborate with us on the development of CYMS101 either before initiating the Phase 2 clinical trial, or after its completion, if successful, and prior to commencing with a Phase 3 clinical trial.

CYWC628 for Wound Healing: We are in the late pre-clinical stages of developing CYWC628 as an allogeneic fibroblast cell-based therapy for wound healing. Our studies are presently focused on utilizing fibroblasts and fibroblast-derived cells to treat wounds in diabetic mice. Our data to date is compiled from four separate animal model studies (manuscript for publication in progress). Each study utilized 16 wild type as well as leptin mutated NONcNZO10LTJ mouse that develops type 2 diabetes when fed a high fat diet. Wound size and area for all our experiments were measured using an eKare inSight™ device which is FDA approved for measuring and monitoring wound size, area and depth. Phase 1 of our pre-clinical study studied the subcutaneous and topically administered single cell mouse dermal fibroblasts (both treatments administered every two days), as well as mouse dermal fibroblast derived exosomes. The results of this study indicated significant improvement in wound healing ($p < 0.0005$) for topically administered mouse fibroblasts and mouse fibroblast exosomes as compared to untreated control, and significant improvement in wound healing with subcutaneous inject of fibroblast in the wound periphery ($p < .005$). Our phase 2 pre-clinical study studied the impact of using frozen and thawed single cell mouse fibroblasts administered every two days, as well as mouse spheroid fibroblasts, one-time topical administration, measuring 250 um and each containing approximately 10,000 mouse dermal fibroblasts. In total 100 spheroids were topically administered on to an 8 millimeter diameter wound on the back of the wild type and leptin mutated mice. The results of the study indicated significant improvement in wound healing with the frozen thawed single cell mouse fibroblasts ($p < 0.005$), as well as 4°C stored mouse fibroblast spheroids ($p < 0.0005$) with both mouse types. Our objective was to test the feasibility of using spheroid fibroblasts as an extended-release mechanism on wound surfaces. The results indicated that spheroid fibroblasts are easier, do not require cold chain logistics, and are more viable to use, in addition to generating more significant results. Our phase 3 pre-clinical study tested the effect of using a single topical administration of human dermal fibroblast (CYWC628) spheroids compared to a single administration of mouse dermal spheroids, in addition to comparing with a commercially available and FDA approved diabetic foot ulcer treatment called Grafix™. The results of our study indicated that CYWC628 significantly improved wound healing rate ($p < 0.0005$) as compared to untreated control as well as significant improvement ($p < 0.05$) over mouse fibroblast spheroids and Grafix™. For our Phase 4 pre-clinical study we studied the impact of a single topical treatment of CYWC628 spheroids and Grafix™ on a chemically induced chronic wound model often used to mimic diabetic foot ulcers in animal models. The results of our study indicated a 58.5% reduction in wound area three days after a single topical administration of CYWC628 as compared to 34.5% for Grafix™ ($p < 0.005$). The untreated saline control group had an 11% improvement in wound healing which was not statistically significant ($p < 0.06$). Our results also indicated that with multiple topical administration of CYWC628, the rate of wound closure will likely be more rapid. For our last pre-clinical study, we will investigate multiple administrations of CYWC628 on a chemically induced chronic wound mouse model to provide information on frequency of CYWC628 administration. We expect to complete this study in the fourth quarter of 2023. Based upon our results achieved to date, we plan to pursue an IND submission with the FDA for wound healing as early as 2024.

Our Competitive Strengths

Our strengths lie in our technology platform centered around the power of fibroblasts and in our experienced leadership team. Fibroblasts are the most common cell found in the human body and we believe they are more robust and potent than stem cells. Our intellectual property portfolio includes 48 issued patents and 108 pending patents for the use of fibroblasts in diverse therapeutic areas. We also have an experienced leadership team with successful track records in entrepreneurial startup companies and the life sciences industry, a board of directors with life sciences operational leadership experience, and a world-renowned scientific advisory board with relevant expertise.

Our Strategy

We are leveraging fibroblast cells as a technology platform to research and develop innovative treatments for chronic diseases with significant unmet treatment needs. Our vision is to become a world leader in regenerative medicine through a rigorous scientific process and commitment to serving patients' needs. To achieve our vision, we will focus our efforts on the following strategy:

- Prioritize our initial clinical development efforts on product candidates with the combination of significant unmet treatment needs, lower risk and high market potential.

- Partner with contract research organizations, or CROs, with the relevant expertise and experience to successfully and timely execute clinical trials to generate reliable pivotal data that can be used to seek approvals.
- Attract and retain scientists with the skill sets required to conduct preclinical studies and identify the optimal paths forward to clinical trials.
- Invest in critical capabilities required to produce and supply fibroblasts for clinical trials and initial commercialization.
- Protect, expand and defend our intellectual property portfolio around fibroblasts.
- Expand development efforts in product candidates with longer development timelines, greater risk and significant unmet treatment needs as funding allows.

Summary of Risk Factors

Our business is subject to numerous risks and uncertainties that you should be aware of before making an investment decision, including those highlighted in the section entitled "*Risk Factors*" in this prospectus. These risks include, but are not limited to, the following:

- The successful development of biopharmaceutical products is highly uncertain.
- We have a limited operating history and none of our current product candidates have been approved for commercial sale.
- We have incurred significant net losses since inception, expect to continue to incur significant net losses for the foreseeable future and may never achieve or maintain profitability.
- We will require substantial additional capital to finance our operations. If we are unable to raise such capital when needed, or on acceptable terms, we may be forced to delay, reduce and/or eliminate one or more of our research and drug development programs or future commercialization efforts.
- The regulatory approval processes of the FDA, the European Medicines Agency, or the EMA, and other comparable foreign regulatory authorities are lengthy, time consuming and inherently unpredictable.
- We may encounter substantial delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.
- The outcome of preclinical studies or early clinical trials may not be predictive of the success of later clinical trials, and the results of our clinical trials may not satisfy the requirements of the FDA, the EMA or other comparable foreign regulatory authorities.
- Interim, topline and preliminary data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.
- Our current or future product candidates may cause adverse events, toxicities or other undesirable side effects when used alone or in combination with other approved products or investigational new drugs that may result in a safety profile that could inhibit regulatory approval, prevent market acceptance, limit their commercial potential or result in significant negative consequences.
- Even if approved, our product candidates may not achieve adequate market acceptance.
- Our refrigerated product candidates require specific storage, handling and administration at the clinical sites.
- We intend to identify and develop novel cell therapy product candidates, which makes it difficult to predict the time, cost and potential success of product candidate development.

- Because cell therapy is novel and the regulatory landscape that governs any cell therapy product candidates we may develop is rigorous, complex, uncertain and subject to change, we cannot predict the time and cost of obtaining regulatory approval, if we receive it at all, for any product candidates we may develop.
- We may be unable to obtain U.S. or foreign regulatory approvals and, as a result, may be unable to commercialize our product candidates.
- Any product candidates for which we intend to seek approval as biologic products may face competition sooner than anticipated.
- We have limited experience in designing clinical trials.
- Our long-term prospects depend in part upon discovering, developing and commercializing additional product candidates, which may fail in development or suffer delays that adversely affect their commercial viability.
- We have never commercialized a fibroblast cell-based therapy product candidate before and may lack the necessary expertise, personnel and resources to successfully commercialize any product candidates on our own or together with suitable collaborators.
- We face significant competition.
- If we are unable to establish sales or marketing capabilities or enter into agreements with third parties to sell or market our product candidates, we may not be able to successfully sell or market our product candidates that obtain regulatory approval.
- In order to successfully implement our plans and strategies, we will need to grow the size of our organization, and we may experience difficulties in managing this growth.
- We are subject to risks related to our dependence on third parties (i) to conduct certain aspects of our preclinical studies and clinical trials and (ii) for certain portions of our manufacturing process.
- We are highly dependent on our Houston, Texas facility and any failure to maintain the use of this facility would have a material and adverse effect on our business.
- We are subject to extensive government regulations.
- Our business entails a significant risk of product liability.
- The FDA, the EMA and other comparable foreign regulatory authorities may not accept data from trials conducted in locations outside of their jurisdiction.
- Even if our product candidates receive regulatory approval, they will be subject to significant post-marketing regulatory requirements and oversight.
- Our success depends on our ability to protect our intellectual property and our proprietary technologies, and we are subject to various risks relating to our intellectual property.
- Our listing differs significantly from a firm-commitment underwritten initial public offering.
- The requirements of being a public company may strain our resources, divert management's attention and affect our ability to attract and retain executive management and qualified board members.
- We will be a "controlled company" within the meaning of the Nasdaq Stock Market Rules upon the Direct Listing because our insiders will beneficially own more than 50% of the voting power of our outstanding voting securities.
- Upon the Direct Listing, we will have 2,500 shares of Series C Preferred Stock with super voting rights.
- We have identified a material weakness in our internal controls over financial reporting due to lack of segregation of duties.
- Our shares of common stock currently have no public market. An active trading market may not develop or continue to be liquid and the market price of our shares of common stock may be volatile.

Reverse Stock Split

On October 6, 2023, our board of directors and our stockholders each approved the 1-for-4 Reverse Stock Split, and on October 31, 2023, we filed an amended and restated certificate of incorporation with the State of Delaware to immediately effect the Reverse Stock Split. All share and per share information in this prospectus have been adjusted to reflect the Reverse Stock Split, unless otherwise stated.

Adjustments to Authorized Capital Stock

In connection with the Reverse Stock Split, our board of directors and stockholders have also approved reductions in the number of capital stock, and the respective securities constituting our capital stock, we are authorized to issue.

Immediately prior to the Reverse Stock Split, the total number of shares of all classes of capital stock that we were authorized to issue was 600,000,000 shares, consisting of (i) 400,000,000 shares of voting common stock (which we sometimes refer to in this prospectus as our "common stock"), (ii) 120,000,000 shares of non-voting common stock and (iii) 80,000,000 shares of preferred stock, of which 35,000,000 were designated as Series A Preferred Stock, 20,000,000 were designated as Series B Preferred Stock, 20,000,000 were designated as Series B-1 Preferred Stock and 10,000 are designated as Series C Preferred Stock.

Pursuant to the adjustments to our authorized capital stock, immediately after the Reverse Stock Split, the total number of shares of all classes of capital stock that we are authorized to issue is 150,000,000 shares, consisting of (i) 100,000,000 shares of voting common stock (which we sometimes refer to in this prospectus as our "common stock"), (ii) 30,000,000 shares of non-voting common stock and (iii) 20,000,000 shares of preferred stock, of which 8,750,000 shares are designated as Series A Preferred Stock, 5,000,000 shares are designated as Series B Preferred Stock, 5,000,000 shares are designated as Series B-1 Preferred Stock and 2,500 shares are designated as Series C Preferred Stock. We sometimes refer to the foregoing adjustments in our capital stock in this prospectus as the "Authorized Capital Stock Adjustments."

Upon consummation of the Direct Listing, after giving effect to the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws, we will be authorized to issue 110,000,000 shares of capital stock, which will consist of: (i) 100,000,000 shares of common stock, par value $0.00001 per share and (ii) 10,000,000 shares of preferred stock, par value $0.00001 per share, of which 2,500 shares are designated as Series C Preferred Stock. See "Description of Capital Stock" for additional details.

Implications of being a Controlled Company

Upon completion of the Direct Listing, our founder and Chief Executive Officer, Pete O'Heeron, will collectively beneficially own approximately 59% of the voting power of our outstanding voting securities and we will be a "controlled company" within the meaning of the listing rules of The Nasdaq Stock Market LLC.

As long as our principal shareholder owns at least 50% of the voting power of our Company, we will be a "controlled company" as defined under Nasdaq Listing Rules. As a controlled company, we are permitted to rely on certain exemptions from Nasdaq's corporate governance rules, including:

- an exemption from the rule that a majority of our board of directors must be independent directors;
- an exemption from the rule that the compensation of our chief executive officer must be determined or recommended solely by independent directors; and
- an exemption from the rule that our director nominees must be selected or recommended solely by independent directors.

Although we currently do not intend to rely on the "controlled company" exemption under the Nasdaq listing rules, we could elect to rely on this exemption in the future. As a result, you may not in the future have the same protection afforded to shareholders of companies that are subject to these corporate governance requirements.

Implications of being an emerging growth company and a smaller reporting company

We are an "emerging growth company" as defined in the Securities Act of 1933, or the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As such, we are eligible to take, and intend to take, advantage of certain exemptions from various reporting requirements applicable to other public companies that are not emerging growth companies for as long as we continue to be an emerging growth company, including (i) the exemption from the auditor attestation requirements with respect to internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, (ii) the exemptions from say-on-pay, say-on-frequency and say-on-golden parachute voting requirements and (iii) reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements.

We will remain an emerging growth company until the earliest of (i) December 31, 2028, (ii) the last day of the fiscal year in which we have total annual gross revenue of at least $1.235 billion, (iii) the last day of the fiscal year in which we are deemed to be a "large accelerated filer" as defined in Rule 12b-2 under the Securities Exchange Act of 1934, as amended, or the Exchange Act, which would occur if the market value of our common stock held by non-affiliates was $700.0 million or more as of the last business day of the second fiscal quarter of such year or (iv) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this extended transition period and, as a result, we may adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-public companies instead of the dates required for other public companies.

We are also a "smaller reporting company" as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies until the fiscal year following the determination that our voting and non-voting common stock held by non-affiliates is $250 million or more measured on the last business day of our second fiscal quarter, or our annual revenues are less than $100 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is $700 million or more measured on the last business day of our second fiscal quarter.

Corporate Information

We were formed in April 2021 as a Texas limited liability company under the name FibroBiologics, LLC, and converted to a Delaware corporation in December 2021 under the name Fibrobiologics, Inc. On April 12, 2023, we changed our name to FibroBiologics, Inc. Our principal executive offices are located at 455 E. Medical Center Blvd., Suite 300, Houston, Texas 77598. Our telephone number is (281) 671-5150 and our website address is www.fibrobiologics.com. Information contained on or that can be accessed through our website is neither a part of, nor incorporated by reference into, this prospectus, and you should not consider information on our website to be part of this prospectus. Our website address is included in this prospectus as an inactive textual reference only.

SUMMARY FINANCIAL AND OTHER DATA

The summary financial and other data set forth below should be read together with our financial statements and the related notes to those statements, as well as the "*Management's Discussion and Analysis of Financial Condition and Results of Operations*" section of this prospectus. The statements of operations data for the years ended December 31, 2022 and 2021, and the statements of cash flows data for the years ended December 31, 2022 and 2021, have been derived from our audited financial statements included elsewhere in this prospectus. The statements of operations data for the six months ended June 30, 2023 and 2022, the statements of cash flows data for the six months ended June 30, 2023 and 2022, and the balance sheet data as of June 30, 2023, have been derived from our unaudited interim financial statements included elsewhere in this prospectus. The unaudited interim financial statements were prepared on a basis consistent with our audited financial statements and include in management's opinion, all adjustments, consisting of normal recurring adjustments, that we consider necessary for a fair presentation of the financial information set forth in those statements. Our historical results are not necessarily indicative of the results that may be expected in any future period, and our interim results are not necessarily indicative of our expected results for the year ending December 31, 2023.

All share numbers and per share amounts in the tables below have been adjusted to reflect the Reverse Stock Split.

	For the six months ended June 30,		For the years ended December 31,	
	2023	**2022**	**2022**	**2021**
	(unaudited, in thousands, except shares and per share data)		**(in thousands, except shares and per share data)**	
Statements of Operations Data:				
Operating expenses:				
Research and development	$ 1,021	$ 454	$ 1,147	$ 521
General, administrative and other	3,337	1,368	3,320	1,057
Total operating expenses	4,358	1,822	4,467	1,578
Loss from operations	(4,358)	(1,822)	(4,467)	(1,578)
Other loss	(72)	—	—	—
Interest expense	(146)	(213)	(654)	(4)
Net loss	$ (4,576)	$ (2,035)	$ (5,121)	$ (1,582)
Deemed dividend	(2,573)	—	—	—
Net loss attributable to common stockholders	$ (7,149)	$ (2,035)	$ (5,121)	$ (1,582)
Net loss per share, basic and diluted	$ (.25)	$ (.07)	$ (.18)	$ N/A
Weighted-average shares outstanding, basic and diluted	28,230,842	28,230,842	28,230,842	N/A
Statements of Cash Flows Data:				
Net cash used in operating activities	$ (3,661)	$ (1,526)	$ (4,066)	$ (1,410)
Net cash used in investing activities	$ (80)	$ —	$ —	$ —
Net cash provided by financing activities	$ 12,853	$ 4,075	$ 5,925	$ 1,817

	As of June 30, 2023
	(unaudited, in thousands)
Balance Sheet Data:	
Cash and cash equivalents	$ 11,378
Working capital[1]	$ 10,818
Total assets	$ 13,844
Total liabilities	$ 2,491
Total stockholders' equity	$ 11,353

[1] We define working capital as current assets less current liabilities.

RISK FACTORS

An investment in our common stock involves a high degree of risk. You should carefully consider the following risks and uncertainties, together with all of the other information contained in this prospectus, including our financial statements and related notes appearing elsewhere in this prospectus, before deciding whether to invest in our common stock. The occurrence of one or more of the events or circumstances described in these risk factors, alone or in combination with other events or circumstances, may have a material adverse effect on our business, reputation, revenue, financial condition, results of operations and future prospects, in which event you could lose all or part of your investment. The risks and uncertainties described below are not intended to be exhaustive and are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations. This prospectus also contains forward-looking statements that involve risks and uncertainties. See "Cautionary Note Regarding Forward-Looking Statements." Our actual results could differ materially and adversely from those anticipated in these forward-looking statements as a result of certain factors, including those described below.

Risks Related to Our Financial Condition and Capital Requirements

The successful development of biopharmaceutical products is highly uncertain.

Successful development of biopharmaceutical products is highly uncertain and is dependent on numerous factors, many of which are beyond our control. Product candidates that appear promising in the early phases of development may fail to reach the market for several reasons, including:

- clinical trial results showing the product candidates to be less effective than expected (for example, a clinical trial could fail to meet its primary or key secondary endpoint(s)) or have an unacceptable safety or tolerability profile;
- failure to receive the necessary regulatory approvals or a delay in receiving such approvals, which, among other things, may be caused by patients who fail the trial screening process, slow enrollment in clinical trials, patients dropping out of trials, patients lost to follow-up, length of time to achieve trial endpoints, additional time requirements for data analysis or NDA preparation, discussions with the FDA, an FDA request for additional preclinical or clinical data or unexpected safety or manufacturing issues;
- preclinical study results showing the product candidate to be less effective than desired or to have harmful side effects;
- post-marketing approval requirements; or
- the proprietary rights of others and their competing products and technologies that may prevent our product candidates from being commercialized.

The length of time necessary to complete clinical trials and submit an application for marketing approval for a final decision by a regulatory authority varies significantly from one product candidate to the next and from one country or jurisdiction to the next and may be difficult to predict.

Even if we are successful in obtaining marketing approval, commercial success of approved products may also depend in large part on the availability of coverage and adequate reimbursement from third-party payors, including government payors such as the Medicare and Medicaid programs and managed care organizations in the United States or country-specific governmental organizations in foreign countries, which may be affected by existing and future healthcare reform measures designed to reduce the cost of healthcare. Third-party payors could require us to conduct additional studies, including post-marketing studies related to the cost effectiveness of an approved product, to qualify for reimbursement, which could be costly and divert our resources. If government and other healthcare payors were to not provide coverage and adequate reimbursement for our products once approved, market acceptance and commercial success may be reduced.

In addition, if any of our product candidates receive marketing approval, we will be subject to significant regulatory obligations regarding the submission of safety and other post-marketing information and reports and registration, and will need to continue to comply (or ensure that any third-party providers comply) with cGMPs and good clinical practices, or GCPs, for any clinical trials that we conduct post-approval. In addition, there is always the risk that we, a regulatory authority or a third party might identify previously unknown problems with a product post-approval, such as adverse events of unanticipated severity or frequency. Compliance with these requirements is costly, and any failure to comply or other issues with our product candidates post-approval could adversely affect our business, financial condition and results of operations.

We have a limited operating history and none of our current product candidates have been approved for commercial sale, which may make it difficult for you to evaluate our current business and predict our future success and viability.

Biopharmaceutical product development is a highly speculative undertaking and involves a substantial degree of risk. We are a clinical-stage cell therapy company with a limited operating history upon which you can evaluate our business and prospects. None of our current product candidates are approved for commercial sale and we have not generated any revenue from such product candidates. To date, we have devoted substantially all of our resources and efforts to organizing and staffing our company, business planning, executing partnerships, raising capital, discovering, identifying and developing potential product candidates, securing related intellectual property rights and conducting and planning preclinical studies and clinical trials of our product candidates. In relation to our current product candidates, we have not yet demonstrated our ability to successfully complete any Phase 3 clinical trials, obtain marketing approvals, manufacture a commercial-scale product or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful product commercialization. As a result, it may be more difficult for you to accurately predict our future success or viability than it could be if we had a longer operating history or a history of successfully developing and commercializing biopharmaceutical products.

In addition, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors and risks frequently experienced by clinical-stage biopharmaceutical companies in rapidly evolving fields. We also may need to transition from a company with a research focus to a company capable of supporting commercial activities. If we do not adequately address these risks and difficulties or successfully make such a transition, our business will suffer.

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

We have incurred significant net losses since our inception, have not generated any revenue from product sales to date and have financed our operations principally through private financings. For the years ended December 31, 2022 and 2021, and the six months ended June 30, 2023, we incurred net losses of $5.1 million, $1.6 million, and $4.6 million respectively. As of December 31, 2022, and June 30, 2023, we had an accumulated deficit of $7.9 million and $12.4 million, respectively. Our losses have resulted principally from expenses incurred in research and development of our product candidates and from management and administrative costs and other expenses that we have incurred while building our business infrastructure. We expect that it will be several years, if ever, before we have a commercialized product and generate revenue from product sales. Even if we succeed in receiving marketing approval for, and commercializing, one or more of our product candidates, we expect that we will continue to incur substantial research and development and other expenses as we discover, develop and market additional potential product candidates.

We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase substantially if and as we:

- advance the development of our lead product candidates through clinical development, and, if approved by the FDA, commercialization;
- advance our preclinical development programs into clinical development;
- incur manufacturing costs for cell production to supply our product candidates;

- seek regulatory approvals for any of our product candidates that successfully complete clinical trials;
- increase our research and development activities to identify and develop new product candidates;
- hire additional personnel;
- expand our operational, financial and management systems;
- meet the requirements and demands of being a public company;
- invest in further development to protect and expand our intellectual property;
- establish a sales, marketing, medical affairs and distribution infrastructure to commercialize any product candidates for which we may obtain marketing approval and intend to commercialize; and
- expand our manufacturing and develop our commercialization efforts.

The net losses we incur may fluctuate significantly from period to period, such that a period-to-period comparison of our results of operations may not be a good indication of our future performance. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our working capital and our ability to achieve and maintain profitability.

Our ability to become and remain profitable depends on our ability to generate revenue or execute other business development arrangements. We do not expect to generate significant revenue, if any, unless and until we are able to obtain regulatory approval for, and successfully commercialize, one or more product candidates we are developing or may develop. Successful commercialization will require achievement of many key milestones, including demonstrating safety and efficacy in clinical trials, obtaining regulatory approval for these product candidates, manufacturing, marketing and selling those products for which we may obtain regulatory approval, satisfying any post-marketing requirements and obtaining reimbursement for our products from private insurance or government payors. Because of the uncertainties and risks associated with these activities, we are unable to accurately and precisely predict the timing and amount of revenues, the extent of any further losses or if or when we might achieve profitability.

We may never succeed in these activities and, even if we do, we may never generate revenues that are significant enough for us to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable could impair our ability to raise capital, expand our business, diversify our product offerings or continue our operations. If we continue to incur losses as we have since our inception, investors may not receive any return on their investment and may lose their entire investment.

We will require substantial additional capital to finance our operations. If we are unable to raise such capital when needed, or on acceptable terms, we may be forced to delay, reduce and/or eliminate one or more of our research and drug development programs or future commercialization efforts.

Developing biopharmaceutical products, including conducting preclinical studies and clinical trials, is a very time-consuming, expensive and uncertain process that takes years to complete. Our operations have consumed substantial amounts of cash since inception, and we expect our expenses to increase in connection with our ongoing activities, particularly as we initiate and conduct clinical trials of, and seek marketing approval for our current product candidates and any future product candidates. Even if one or more of the product candidates that we develop is approved for commercial sale, we anticipate incurring significant costs associated with commercializing any approved product candidate. Our expenses could increase beyond expectations if we are required by the FDA, the EMA or other comparable regulatory authorities to perform clinical trials or preclinical studies in addition to those that we currently anticipate. Other unanticipated costs may also arise. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to drug sales, marketing, manufacturing and distribution. Because the design and outcome of our anticipated clinical trials are highly uncertain, we cannot reasonably estimate the actual amounts necessary to successfully complete the development and commercialization of any product candidate we develop. Accordingly, we will need to obtain substantial additional funding in order to maintain our continuing operations.

As of June 30, 2023, we had approximately $11.4 million in cash and cash equivalents. Based on our current business plans, we believe that our existing capital will enable us to fund our operations through at least September 30, 2024. Our estimate as to how long we expect our existing capital to be able to continue to fund our operations is based on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. Changing circumstances, some of which may be beyond our control, could cause us to consume capital significantly faster than we currently anticipate, and we may need to seek additional funds sooner than planned.

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

- the initiation, progress, timeline, cost and results of our clinical trials for our product candidates;
- the initiation, progress, timeline, cost and results of additional research and preclinical studies related to pipeline development and other research programs we initiate in the future;
- the cost and timing of manufacturing activities, including our planned manufacturing scale-up activities associated with our product candidates and other programs as we advance them through preclinical and clinical development through commercialization;
- the potential expansion of our current development programs to seek new indications;
- the outcome, timing and cost of meeting regulatory requirements established by the FDA and other comparable foreign regulatory authorities;
- the cost of filing, prosecuting, defending and enforcing patent claims and other intellectual property rights, in-licensed or otherwise;
- the effect of competing technological and market developments;
- the payment of licensing fees, potential royalty payments and potential milestone payments;
- the cost of general operating expenses;
- the cost of establishing sales, marketing and distribution capabilities for any product candidates for which we may receive regulatory approval in regions where we choose to commercialize our products on our own; and
- the costs of operating as a public company.

Advancing the development of our product candidates will require a significant amount of capital. In order to fund all of the activities that are necessary to complete the development of our product candidates, we will be required to obtain further funding through equity offerings, debt financings, collaborations and licensing arrangements or other sources, which may dilute our stockholders or restrict our operating activities. Adequate additional funding may not be available to us on acceptable terms, or at all.

Our failure to raise capital as and when needed or on acceptable terms would have a negative impact on our financial condition and our ability to pursue our business strategy, and we may have to delay, reduce the scope of, suspend or eliminate one or more of our research-stage programs, clinical trials or future commercialization efforts, grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves, obtain funds through arrangement with collaborators on terms unfavorable to us or pursue merger or acquisition strategies, all of which could adversely affect the holdings or the rights of our stockholders.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our product candidates on unfavorable terms to us.

We may seek additional capital through a variety of means, including through equity, debt financings, or other sources, including up-front payments and milestone payments from strategic collaborations. We may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences and anti-dilution protections that adversely affect your rights as a stockholder.

Such financing may also result in imposition of debt covenants, increased fixed payment obligations or other restrictions that may adversely affect our ability to conduct our business. If we raise additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates, or grant licenses on terms that are not favorable to us.

We are party to a share purchase agreement, dated November 12, 2021, with certain investors, or the Share Purchase Agreement, pursuant to which we may elect to issue and sell to such investors, and if so elected, such investors will be obligated to purchase, for a period commencing on the first day on which our common stock trade on a principal U.S. securities exchange and ending 60 months from such date, up to $100,000,000 worth of shares of our common stock, or the Aggregate Limit. The Share Purchase Agreement is contingent upon our achieving a public listing of our common stock. Pursuant to the agreement, we are required to pay the investors a commitment fee equal to 2% of the Aggregate Limit, payable in cash or shares of our common stock. The commitment fee is payable even if we do not utilize any drawdowns.

In addition, the agreement requires us to issue to the investors, on our public listing date, a warrant to purchase up to the number of shares of our common stock that is equal to 4% of our total equity interests outstanding immediately after the completion of our public listing, at a price per share equal to the lesser of (i) the public offering price per share (in the case of an initial public offering) or the closing bid price per share on the public listing date (in the case of a public listing other than an initial public offering) or (ii) the quotient obtained by dividing $700,000,000 by the total number of equity interests.

Our election to issue and sell to the investors, shares of our common stock pursuant to the Share Purchase Agreement, or the exercise of the warrant we will be obligated to issue upon consummation of this Direct Listing, will result in further dilution to our existing stockholders and investors who purchase shares of our common stock in this offering.

Risks Related to Development, Regulatory Approval and Commercialization

The regulatory approval processes of the FDA, the EMA and other comparable foreign regulatory authorities are lengthy, time consuming and inherently unpredictable. If we are ultimately unable to obtain regulatory approval for our product candidates, we will be unable to generate product revenue and our business will be substantially harmed.

We are not permitted to commercialize, market, promote or sell any product candidate in the United States without obtaining marketing approval from the FDA. Foreign regulatory authorities, such as the EMA, impose similar requirements. The time required to obtain approval by the FDA, the EMA and other comparable foreign regulatory authorities is unpredictable, typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the type, complexity and novelty of the product candidates involved. In addition, approval policies, regulations or the type and amount of clinical data necessary to gain approval may change during the course of a product candidate's clinical development and may vary among jurisdictions, which may cause delays in the approval or the decision not to approve an application. Regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical, clinical or other data. Even if we eventually complete clinical testing and receive approval of any regulatory filing for our product candidates, the FDA, the EMA and other comparable foreign regulatory authorities may approve our product candidates for a more limited indication or a narrower patient population than we originally requested. We have not submitted for, or obtained, regulatory approval for any product candidate, and it is possible that none of our existing product candidates or any product candidates we may seek to develop in the future will ever obtain regulatory approval.

Further, development of our product candidates and/or regulatory approval may be delayed for reasons beyond our control.

Applications for our product candidates could fail to receive regulatory approval for many reasons, including the following:

- the FDA, the EMA or other comparable foreign regulatory authorities may disagree with the design, implementation or results of our clinical trials;
- the FDA, the EMA or other comparable foreign regulatory authorities may determine that our product candidates are not safe and effective, only moderately effective or have undesirable or unintended side effects, toxicities or other characteristics that preclude our obtaining marketing approval or prevent or limit commercial use;

- the population studied in the clinical trial may not be sufficiently broad or representative to assure efficacy and safety in the full population for which we seek approval;

- the FDA, the EMA or other comparable foreign regulatory authorities may disagree with our interpretation of data from preclinical studies or clinical trials;

- the data collected from clinical trials of our product candidates may not be sufficient to support the submission of a Biologics License Application, or BLA, or other submission or to obtain regulatory approval in the United States or elsewhere;

- we may be unable to demonstrate to the FDA, the EMA or other comparable foreign regulatory authorities that a product candidate's risk-benefit ratio for its proposed indication is acceptable;

- the FDA, the EMA or other comparable foreign regulatory authorities may fail to approve our manufacturing processes, test procedures and specifications or facilities or those of third-party manufacturers with which we contract for clinical and commercial supplies; and

- the approval policies or regulations of the FDA, the EMA or other comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

This lengthy, uncertain approval process, as well as the unpredictability of the results of clinical trials, may result in our failing to obtain regulatory approval to market any of our product candidates, which would significantly harm our business, results of operations and prospects. In addition, the FDA, the EMA or comparable foreign regulatory authorities may change their policies, adopt additional regulations or revise existing regulations or take other actions, which may prevent or delay approval of our future product candidates under development on a timely basis. Such policy or regulatory changes could impose additional requirements upon us that could delay our ability to obtain approvals, increase the costs of compliance or restrict our ability to maintain any marketing authorizations we may have obtained.

We may encounter substantial delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

Before obtaining marketing approval from the FDA, the EMA or other comparable foreign regulatory authorities for the sale of our product candidates, we must complete preclinical development and extensive clinical trials to demonstrate the safety and efficacy of our product candidates. Clinical testing is expensive, difficult to design and implement, can take many years to complete and its ultimate outcome is uncertain. A failure of one or more clinical trials can occur at any stage of the process. The outcome of preclinical studies and early-stage clinical trials may not be predictive of the success of later clinical trials.

We do not know whether our future clinical trials will begin on time or enroll patients on time, or whether our ongoing and/or future clinical trials will be completed on schedule or at all. Clinical trials can be delayed for a variety of reasons, including delays related to:

- the FDA, the EMA or other comparable foreign regulatory authorities disagreeing as to the design or implementation of our clinical trials;

- obtaining regulatory authorizations to commence a trial or reaching a consensus with regulatory authorities on trial design;

- any failure or delay in reaching an agreement with CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;

- obtaining approval from one or more independent institutional review boards, or IRBs;

- IRBs refusing to approve, suspending or terminating the trial at an investigational site, precluding enrollment of additional subjects, or withdrawing their approval of the trial;

- delays in enrollment due to travel or quarantine policies, or other factors related pandemics or other events outside our control;
- changes to clinical trial protocol;
- clinical sites deviating from trial protocol or dropping out of a trial;
- manufacturing sufficient quantities of a product candidate or obtaining sufficient quantities of combination therapies for use in clinical trials;
- subjects failing to enroll or remain in our trial at the rate we expect, or failing to return for post- treatment follow-up;
- subjects choosing an alternative treatment for the indication for which we are developing our product candidates, or participating in competing clinical trials;
- lack of adequate funding to continue the clinical trial;
- subjects experiencing severe or unexpected drug-related adverse effects;
- occurrence of serious adverse events in trials of the same class of agents conducted by other companies;
- selection of clinical endpoints that require prolonged periods of clinical observation or analysis of the resulting data;
- a facility manufacturing our product candidates or any of their components being ordered by the FDA, the EMA or comparable foreign regulatory authorities to temporarily or permanently shut down due to violations of cGMP regulations or other applicable requirements, or infections or cross-contaminations of product candidates in the manufacturing process;
- any changes to our manufacturing process that may be necessary or desired;
- third-party clinical investigators losing the licenses or permits necessary to perform our clinical trials, not performing our clinical trials on our anticipated schedule or consistent with the clinical trial protocol, GCP or other regulatory requirements;
- third-party contractors not performing data collection or analysis in a timely or accurate manner; or
- third-party contractors becoming debarred or suspended or otherwise penalized by the FDA, the EMA or other government or regulatory authorities for violations of regulatory requirements, in which case we may need to find a substitute contractor, and we may not be able to use some or all of the data produced by such contractors in support of our marketing applications.

Conducting clinical trials in foreign countries, as we may do for our product candidates, presents additional risks that may delay completion of our clinical trials. These risks include the failure of enrolled patients in foreign countries to adhere to clinical protocol as a result of differences in healthcare services or cultural customs, managing additional administrative burdens associated with foreign regulatory schemes, as well as political and economic risks relevant to such foreign countries.

Additionally, if the results of our clinical trials are inconclusive or if there are safety concerns or serious adverse events associated with our product candidates, we may:

- be delayed in obtaining marketing approval, if at all;
- obtain approval for indications or patient populations that are not as broad as intended or desired;
- obtain approval with labeling that includes significant use or distribution restrictions or safety warnings;
- be required to perform additional clinical trials to support approval or be subject to additional post-marketing testing requirements;
- be subject to the addition of labeling statements, such as warnings or contraindications;
- be sued; or
- experience damage to our reputation.

Our development costs will also increase if we experience delays in testing or obtaining marketing approvals. We do not know whether any of our preclinical studies or clinical trials will begin as planned, need to be restructured or be completed on schedule, if at all. Any delay in, or termination of, our clinical trials will delay the submission of a BLA to the FDA or similar applications with comparable foreign regulatory authorities and, ultimately, our ability to commercialize our product candidates, if approved, and generate product revenue. Even if our clinical trials are completed as planned, we cannot be certain that their results will support our claims for differentiation or the effectiveness or safety of our product candidate. The FDA has substantial discretion in the review and approval process and may disagree that our data support the claims we propose.

Moreover, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and receive compensation in connection with such services. Under certain circumstances, we may be required to report some of these relationships to the FDA, the EMA or other comparable foreign regulatory authorities. The FDA, the EMA or other comparable foreign regulatory authorities may conclude that a financial relationship between us and a principal investigator has created a conflict of interest or otherwise affected interpretation of the study. The FDA, the EMA or other comparable foreign regulatory authorities may therefore question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized. This could result in a delay in approval, or rejection, of our marketing applications by the FDA, the EMA or other comparable foreign regulatory authorities, as the case may be, and may ultimately lead to the denial of marketing approval of one or more of our product candidates.

If we experience delays in the completion of, or termination of, any clinical trial of our product candidates, the commercial prospects of our product candidates will be harmed, and our ability to generate product revenues from any of these product candidates will be delayed. Moreover, any delays in completing our clinical trials will increase our costs, slow down our product candidate development and approval process and jeopardize our ability to commence product sales and generate revenues.

In addition, many of the factors that cause, or lead to, termination or suspension of, or a delay in the commencement or completion of, clinical trials may also ultimately lead to the denial of regulatory approval of a product candidate. Any delays to our clinical trials that occur as a result could shorten any period during which we may have the exclusive right to commercialize our product candidates and our competitors may be able to bring products to market before we do, and the commercial viability of our product candidates could be significantly reduced. Any of these occurrences may harm our business, financial condition and prospects significantly.

The outcome of preclinical studies or early clinical trials may not be predictive of the success of later clinical trials, and the results of our clinical trials may not satisfy the requirements of the FDA, the EMA or other comparable foreign regulatory authorities.

Positive results from preclinical studies and early clinical trials do not mean that future clinical trials will be successful. Failure can occur at any time during the clinical trial process. We do not know whether any of our product candidates will perform in current or future clinical trials as they have performed in preclinical studies and early clinical trials. Product candidates in later-stage clinical trials may fail to demonstrate sufficient safety and efficacy to the satisfaction of the FDA, the EMA and other comparable foreign regulatory authorities despite having progressed through preclinical studies and early-stage clinical trials.

In some instances, there can be significant variability in safety and efficacy results between different clinical trials of the same product candidate due to numerous factors, including changes in trial protocols, differences in size and type of the patient populations, differences in and adherence to the dosing regimen and other trial protocols and the rate of dropout among clinical trial participants. Patients treated with our product candidates may also be undergoing surgical, radiation and chemotherapy treatments and may be using other approved products or investigational new drugs, which can cause side effects or adverse events that are unrelated to our product candidate. As a result, assessments of efficacy can vary widely for a particular patient, and from patient to patient and site to site within a clinical trial. This subjectivity can increase the uncertainty of, and adversely impact, our clinical trial outcomes. We do not know whether any clinical trials we may conduct will demonstrate consistent or adequate efficacy and safety sufficient to obtain marketing approval to market our product candidates. Most product candidates that begin clinical trials are never approved by regulatory authorities for commercialization.

Additionally, some of our planned clinical trials may utilize an "open-label" trial design. An "open-label" clinical trial is one where both the patient and investigator know whether the patient is receiving either the investigational product candidate or an existing approved pharmaceutical or placebo. Most typically, open-label clinical trials test only the investigational product candidate and sometimes may do so at different dose levels. Open-label clinical trials are subject to various limitations that may exaggerate any therapeutic effect as patients in open-label clinical trials are aware when they are receiving treatment. Open-label clinical trials may be subject to a "patient bias" where patients perceive their symptoms to have improved merely due to their awareness of receiving an experimental treatment. In addition, open-label clinical trials may be subject to an "investigator bias" where those assessing and reviewing the physiological outcomes of the clinical trials are aware of which patients have received treatment and may interpret the information of the treated group more favorably given this knowledge. The results from an open-label trial may not be predictive of future clinical trial results with any of our product candidates for which we include an open-label clinical trial when studied in a controlled environment with a placebo or active control.

Moreover, preclinical and clinical data are often susceptible to varying interpretations and analyses and many companies that believed their product candidates performed satisfactorily in preclinical studies or clinical trials nonetheless failed to obtain FDA, EMA or comparable foreign regulatory authority approval. We cannot guarantee that the FDA, the EMA or comparable foreign regulatory authorities will interpret trial results as we do, and more trials could be required before we are able to submit applications seeking approval of our product candidates. This is particularly true for clinical trials in rare diseases, where the very small patient population makes it difficult to conduct two traditional, adequate and well-controlled studies, and therefore the FDA, the EMA or comparable foreign regulatory authorities are often required to exercise flexibility in approving therapies for such diseases. To the extent that the results of the trials are not satisfactory to the FDA, the EMA or comparable foreign regulatory authorities for support of a marketing application, we may be required to expend significant resources, which may not be available to us, to conduct additional trials in support of potential approval of our product candidates. Even if regulatory approval is secured for any of our product candidates, the terms of such approval may limit the scope and use of our product candidate, which may also limit its commercial potential. Furthermore, the approval policies or regulations of the FDA, the EMA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval, which may lead to the FDA, the EMA or comparable foreign regulatory authorities delaying, limiting or denying approval of our product candidates.

Interim, topline and preliminary data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publicly disclose interim, preliminary or topline data from our preclinical studies or clinical trials, which is based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or trial. We also make assumptions, estimations, calculations and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the interim, topline or preliminary results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Interim, preliminary and topline data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, interim, topline and preliminary data should be viewed with caution until the final data are available. Adverse differences between preliminary, topline or interim data and final data could significantly harm our business prospects.

Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular product candidate and our company in general. In addition, the information we choose to publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine is material or otherwise appropriate information to include in our disclosure. If the interim, topline or preliminary data that we report differ from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to obtain approval for, and commercialize, our product candidates may be harmed, which could harm our business, operating results, prospects or financial condition.

Our current or future product candidates may cause adverse events, toxicities or other undesirable side effects when used alone or in combination with other approved products or investigational new drugs that may result in a safety profile that could inhibit regulatory approval, prevent market acceptance, limit their commercial potential or result in significant negative consequences.

As is the case with biopharmaceuticals generally, it is likely that there may be side effects and adverse events associated with our product candidates' use. Results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics. Undesirable side effects caused by our product candidates could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA, the EMA or comparable foreign regulatory authorities. The drug-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition and prospects significantly.

If our product candidates are associated with undesirable side effects or have unexpected characteristics in preclinical studies or clinical trials when used alone or in combination with other approved products or investigational new drugs we may need to interrupt, delay or abandon their development or limit development to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective. Treatment-related side effects could also affect patient recruitment or the ability of enrolled subjects to complete the trial, or result in potential product liability claims. Any of these occurrences may prevent us from achieving or maintaining market acceptance of the affected product candidate and may harm our business, financial condition and prospects significantly.

Patients in our ongoing and planned clinical trials in the future may suffer significant adverse events or other side effects not observed in our preclinical studies or previous clinical trials. Some of our product candidates may be used as chronic therapies or be used in pediatric populations, for which safety concerns may be particularly scrutinized by regulatory agencies. In addition, if our product candidates are used in combination with other therapies, our product candidates may exacerbate adverse events associated with the therapy. Patients treated with our product candidates may also be undergoing surgical, radiation or chemotherapy treatments, which can cause side effects or adverse events that are unrelated to our product candidate but may still impact the success of our clinical trials. The inclusion of critically ill patients in our clinical trials may result in deaths or other adverse medical events due to other therapies or medications that such patients may be using or due to the gravity of such patients' illnesses.

If significant adverse events or other side effects are observed in any of our current or future clinical trials, we may have difficulty recruiting patients to the clinical trials, patients may drop out of our trials, or we may be required to abandon the trials or our development efforts of that product candidate altogether. We, the FDA, the EMA, other comparable regulatory authorities or an IRB may suspend clinical trials of a product candidate at any time for various reasons, including a belief that subjects in such trials are being exposed to unacceptable health risks or adverse side effects.

Additionally, if any of our product candidates receives regulatory approval and becomes a product, and we or others later identify undesirable side effects caused by such product, a number of potentially significant negative consequences could result. For example, the FDA could require us to adopt a Risk Evaluation and Mitigation Strategy, or REMS, to ensure that the benefits of treatment with such product outweigh the risks for each potential patient, which may include, among other things, a communication plan to health care practitioners, patient education, extensive patient monitoring or distribution systems and processes that are highly controlled, restrictive and more costly than what is typical for the industry. We or our collaborators may also be required to adopt a REMS or engage in similar actions, such as patient education, certification of health care professionals or specific monitoring, if we or others later identify undesirable side effects caused by any product that we develop alone or with collaborators. Other potentially significant negative consequences include that:

- we may be forced to suspend marketing of that product, or decide to remove the product from the marketplace;
- regulatory authorities may withdraw or change their approvals of that product;
- regulatory authorities may require additional warnings on the label or limit access of that product to selective specialized centers with additional safety reporting and with requirements that patients be geographically close to these centers for all or part of their treatment;
- we may be required to create a medication guide outlining the risks of the product for patients, or to conduct post-marketing studies;
- we may be required to change the way the product is administered;
- we could be subject to fines, injunctions, or the imposition of criminal or civil penalties, or be sued and held liable for harm caused to subjects or patients; and
- the product may become less competitive, and our reputation may suffer.

Any of these events could diminish the usage or otherwise limit the commercial success of our product candidates and prevent us from achieving or maintaining market acceptance of the affected product candidate, if approved by applicable regulatory authorities.

Even if approved, our product candidates may not achieve adequate market acceptance among physicians, patients, healthcare payors and others in the medical community necessary for commercial success.

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

- the efficacy and safety profile as demonstrated in clinical trials compared to alternative treatments;
- the timing of market introduction of the product as well as competitive products;
- the clinical indications for which the product is approved;
- restrictions on the use of our product, such as boxed warnings or contraindications in labeling, or a REMS, if any, which may not be required of alternative treatments and competitor products;
- the potential and perceived advantages of products over alternative treatments;
- the cost of treatment in relation to alternative treatments;

- the availability of coverage and adequate reimbursement, as well as pricing, by third-party payors, including government authorities;
- relative convenience and ease of administration;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the effectiveness of sales and marketing efforts;
- unfavorable publicity relating to our products or similar approved products or product candidates in development by third parties; and
- the approval of other new therapies for the same indications.

If any of our product candidates is approved but does not achieve an adequate level of acceptance by physicians, hospitals, healthcare payors and patients, we may not generate or derive sufficient revenue from that product candidate and our financial results could be negatively impacted.

Our refrigerated product candidates require specific storage, handling and administration at the clinical sites.

Our refrigerated drug product candidates must be stored at low temperatures in specialized refrigerated containers until immediately prior to use. For administration, the drug product container must be carefully removed from storage, warmed to room temperature and inverted to place cells into suspension prior to drawing the product into syringes. The handling, warming and administration of the cell therapy product must be performed according to specific instructions. Failure to correctly handle the product, follow the instructions for warming and administration and/or failure to administer the product within the specified period post-warming could negatively impact the efficacy and or safety of the product.

Because cell therapy is novel and the regulatory landscape that governs any cell therapy product candidates we may develop is rigorous, complex, uncertain and subject to change, we cannot predict the time and cost of obtaining regulatory approval, if we receive it at all, for any product candidates we may develop. At the moment, only a small number of cell therapy products have been approved in the United States and the European Union.

The regulatory requirements that will govern any novel cell therapy product candidates we develop are not entirely clear and are subject to change. Within the broader genetic medicine field, very few therapeutic products have received marketing authorization from the FDA or the EMA. Even with respect to more established products that fit into the categories of gene therapies or cell therapies, the regulatory landscape is still developing. Regulatory requirements governing cell therapy products have changed frequently and will likely continue to change in the future. Moreover, there is substantial overlap in those responsible for regulation of existing cell therapy products. For example, in the United States, the FDA has established the Office of Tissues and Advanced Therapies within its Center for Biologics Evaluation and Research to consolidate the review of cell therapy and related products. Although the FDA has approved other cell-based therapies, there is no assurance that these previous approvals will affect the FDA's review of our product candidates.

Our cell therapy product candidates will need to meet safety and efficacy standards applicable to any new biologic under the regulatory framework administered by the FDA. In addition to FDA oversight and oversight by IRBs, under the National Institutes of Health Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules, or NIH Guidelines, cell therapy clinical trials are also subject to review and oversight by an Institutional Biosafety Committee, or IBC, a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving National Institutes of Health, or NIH, funding of recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them. Although the FDA decides whether individual cell therapy protocols may proceed, the review process and determinations of other reviewing bodies can impede or delay the initiation of a clinical trial, even if the FDA has reviewed the trial and approved its initiation.

The same applies in the European Union. The EMA's Committee for Advanced Therapies, or CAT, is responsible for assessing the quality, safety, and efficacy of advanced-therapy medicinal products. Advanced-therapy medicinal products include cell therapy medicines, somatic-cell therapy medicines and tissue-engineered medicines. The role of the CAT is to prepare a draft opinion on an application for marketing authorization for a cell therapy medicinal candidate that is submitted to the EMA. In the European Union, the development and evaluation of a cell therapy product must be considered in the context of the relevant EU guidelines. The EMA may issue new guidelines concerning the development and marketing authorization for cell therapy products and require that we comply with these new guidelines. As a result, the procedures and standards applied to cell therapy products may be applied to any cell therapy product candidate we may develop, but that remains uncertain at this point.

Adverse developments in preclinical studies or clinical trials conducted by others in the field of cell therapy and cell regulation products may cause the FDA, the EMA and other regulatory bodies to revise the requirements for approval of any product candidates we may develop or limit the use of products utilizing cell therapy technologies, either of which could harm our business. In addition, the clinical trial requirements of the FDA, the EMA and other regulatory authorities and the criteria these regulators use to determine the safety and efficacy of a product candidate vary substantially according to the type, complexity, novelty, and intended use and market of the potential products. The regulatory approval process for product candidates such as ours can be more expensive and take longer than for other, better known, or more extensively studied pharmaceutical or other product candidates. Further, as we are developing novel potential treatments for diseases in which, in some cases, there is little clinical experience with potential new endpoints and methodologies, there is heightened risk that the FDA, the EMA or other regulatory bodies may not consider the clinical trial endpoints to provide clinically meaningful results, and the resulting clinical data and results may be more difficult to analyze. In addition, we may not be able to identify or develop appropriate animal disease models to enable or support planned clinical development. Any natural history studies that we may conduct or rely upon in our clinical development may not be accepted by the FDA, the EMA or other regulatory authorities. Regulatory agencies administering existing or future regulations or legislation may not allow production and marketing of products utilizing cell therapy technology in a timely manner or under technically or commercially feasible conditions. In addition, regulatory action or private litigation could result in expenses, delays or other impediments to our research programs or the commercialization of resulting products. Further, approvals by one regulatory agency may not be indicative of what other regulatory agencies may require for approval.

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

We may be unable to obtain U.S. or foreign regulatory approvals and, as a result, may be unable to commercialize our product candidates.

Our product candidates are subject to extensive governmental regulations relating to, among other things, research, testing, development, manufacturing, safety, efficacy, approval, recordkeeping, reporting, labeling, storage, packaging, advertising and promotion, pricing, marketing and distribution of drugs. Rigorous preclinical studies and clinical trials and an extensive regulatory approval process must be successfully completed in the United States and in many foreign jurisdictions before a new drug can be marketed. Satisfaction of these and other regulatory requirements is costly, time-consuming, uncertain and subject to unanticipated delays. We cannot provide any assurance that any product candidate we may develop will progress through required clinical testing and obtain the regulatory approvals necessary for us to begin selling them.

We have not conducted, managed or completed large-scale or pivotal clinical trials nor managed the regulatory approval process with the FDA, the EMA or any other regulatory authority with respect to our current product candidates. The time required to obtain approvals from the FDA and other regulatory authorities is unpredictable and requires successful completion of extensive clinical trials which typically takes many years, depending upon the type, complexity and novelty of the product candidate. The standards that the FDA and its foreign counterparts use when evaluating clinical trial data can and often changes during drug development, which makes it difficult to predict with any certainty how they will be applied. We may also encounter unexpected delays or increased costs due to new government regulations, including future legislation or administrative action, or changes in FDA policy during the period of drug development, clinical trials and FDA regulatory review.

Any delay or failure in seeking or obtaining required approvals would have a material and adverse effect on our ability to generate revenue from the particular product candidate for which we are developing and seeking approval. Furthermore, any regulatory approval to market a product candidate may be subject to significant limitations on the approved uses or indications for which we may market the product candidate or the labeling or other restrictions. In addition, the FDA has the authority to require a REMS as part of approving an NDA or BLA, or after approval, which may impose further requirements or restrictions on the distribution or use of an approved product candidate. These requirements or restrictions might include limiting prescribing to certain physicians or medical centers that have undergone specialized training, limiting treatment to patients who meet certain safe-use criteria and requiring treated patients to enroll in a registry. These limitations and restrictions may significantly limit the size of the market for the product candidate and affect reimbursement by third-party payors.

We are also subject to numerous foreign regulatory requirements governing, among other things, the conduct of clinical trials, manufacturing and marketing authorization, pricing and third-party reimbursement. The foreign regulatory approval process varies among countries, and generally includes all of the risks associated with FDA approval described above as well as risks attributable to the satisfaction of local regulations in foreign jurisdictions. Moreover, the time required to obtain approval may differ from that required to obtain FDA approval.

We may develop our current and future product candidates in combination with other therapies, which exposes us to additional risks, and certain of our product candidates are regulated as combination products.

We may develop our current and future product candidates in combination with one or more other approved or unapproved therapies to treat skin and connective tissue diseases or other diseases. We may also develop certain product candidates as biologic/drug combination products. Additional time may be required to obtain regulatory approval for our product candidates because they are combination products. Our product candidates that are biologic/drug combination products require coordination within the FDA and similar foreign regulatory agencies for review of their biologic and drug components. Although the FDA and similar foreign regulatory agencies have systems in place for the review and approval of combination products such as ours, we may experience delays in the development and commercialization of our product candidates due to regulatory timing constraints and uncertainties in the product development and approval process.

In addition, even if any product candidate we develop were to receive marketing approval or be commercialized for use in combination with other existing therapies, we would continue to be subject to the risks that the FDA, the EMA or comparable foreign regulatory authorities could revoke approval of the therapy used in combination with our product or that safety, efficacy, manufacturing or supply issues could arise with any of those existing therapies. If the therapies we use in combination with our product candidates are replaced as the standard of care for the indications we choose for any of our product candidates, the FDA, the EMA or comparable foreign regulatory authorities may require us to conduct additional clinical trials. The occurrence of any of these risks could result in our own product candidates, if approved, being removed from the market or being less successful commercially.

We also may choose to evaluate our current product candidates or any future product candidates in combination with one or more therapies that have not yet been approved for marketing by the FDA, the EMA or comparable foreign regulatory authorities. We will not be able to market and sell our product candidates we develop in combination with an unapproved therapy for a combination indication if that unapproved therapy does not ultimately obtain marketing approval either alone or in combination with our product candidate. In addition, unapproved therapies face the same risks described with respect to our product candidates currently in development and clinical trials, including the potential for serious adverse effects, delay in their clinical trials and lack of FDA approval.

If the FDA, the EMA or comparable foreign regulatory authorities do not approve these other products or revoke their approval of, or if safety, efficacy, quality, manufacturing or supply issues arise with, the products we choose to evaluate in combination with our product candidates we develop, we may be unable to obtain approval of or market such combination therapy.

Any product candidates for which we intend to seek approval as biologic products may face competition sooner than anticipated.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, each as amended, or collectively, the ACA, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product. Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product. The law is complex and is still being interpreted and implemented by the FDA. As a result, its ultimate impact, implementation and meaning are subject to uncertainty. While it is uncertain when such processes intended to implement BPCIA may be fully adopted by the FDA, any such processes could have an adverse effect on the future commercial prospects for our biological products.

There is a risk that any of our product candidates approved as a biological product under a BLA would not qualify for the 12-year period of exclusivity or that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider our product candidates to be reference products for competing products, potentially creating the opportunity for generic competition sooner than anticipated. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of litigation. Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of our reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing. If competitors are able to obtain marketing approval for biosimilars referencing our candidates, if approved, our products may become subject to competition from such biosimilars, with the attendant competitive pressure and potential adverse consequences.

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 focus on research programs, therapeutic platforms and product candidates that we identify for specific indications. As a result, we may forego or delay pursuit of opportunities with other therapeutic platforms or product candidates or for other indications that later prove to have greater commercial potential or a greater likelihood of success. 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, therapeutic platforms and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights.

Risks Related to Our Business

Our company has limited experience in designing clinical trials and may experience delays or unexpected difficulties in obtaining regulatory approval for our current and future product candidates.

We have limited experience in designing clinical trials and may be unable to design and execute a clinical trial to support marketing approval. We cannot be certain that our planned clinical trials or any future clinical trials will be successful. It is possible that the FDA may refuse to accept any or all of our planned BLAs for substantive review or may conclude after review of our data that our application is insufficient to obtain regulatory approval for any product candidates. If the FDA does not approve any of our planned BLAs, it may require that we conduct additional costly clinical trials, preclinical studies or manufacturing validation studies before it will reconsider our applications. Depending on the extent of these or any other FDA-required studies, approval of any BLA or other application that we submit may be significantly delayed, possibly for several years, or may require us to expend more resources than we have available. Any failure or delay in obtaining regulatory approvals would prevent us from commercializing our product candidates, generating revenues and achieving and sustaining profitability. It is also possible that additional studies, if performed and completed, may not be considered sufficient by the FDA to approve any BLA or other application that we submit. If any of these outcomes occur, we may be forced to abandon the development of our product candidates, which would materially adversely affect our business and could potentially cause us to cease operations. We face similar risks for our applications in foreign jurisdictions.

We intend to identify and develop novel cell therapy product candidates, which makes it difficult to predict the time, cost and potential success of product candidate development.

Our strategy is to identify, develop and commercialize cell therapy product candidates using our proprietary fibroblast technology, which involves collecting skin biopsies from donor patients, isolating cells and expanding them in culture. Our future success depends on the successful development of these novel therapeutic approaches. To date, no fibroblast therapy products have been approved. In addition, there have been a few number of clinical trials involving fibroblasts as compared to other, more conventional forms of therapy.

The sizes of the markets for our product candidates are estimates, and these markets may be smaller than estimated.

The estimates in this prospectus of the annual addressable markets for our product candidates are based on a number of third-party estimates. While we believe the assumptions and the data underlying the estimates are reasonable, these assumptions and estimates may not be correct and the conditions supporting the assumptions or estimates may change at any time, thereby reducing the predictive accuracy of these underlying factors. As a result, the estimates of the annual addressable market for our product candidates may prove to be incorrect.

Our long-term prospects depend in part upon discovering, developing and commercializing additional product candidates, which may fail in development or suffer delays that adversely affect their commercial viability.

Our future operating results are dependent on our ability to successfully discover, develop, obtain regulatory approval for and commercialize product candidates beyond those we currently have in clinical development. A product candidate can unexpectedly fail at any stage of preclinical or clinical development. The historical failure rate for product candidates is high due to risks relating to safety, efficacy, clinical execution, changing standards of medical care and other unpredictable variables. The results from preclinical studies or early clinical trials of a product candidate may not be predictive of the results that will be obtained in later stage clinical trials of the product candidate.

The success of other product candidates we may develop will depend on many factors, including the following:

- generating sufficient data to support the initiation or continuation of clinical trials;
- obtaining regulatory permission to initiate clinical trials;
- contracting with the necessary parties to conduct clinical trials;
- successful enrollment of patients in, and the completion of, clinical trials on a timely basis;
- the timely manufacture of sufficient quantities of the product candidate and other key materials needed for use in clinical trials; and
- adverse events in the clinical trials.

Even if we successfully advance any other product candidates into clinical development, their success will be subject to all of the clinical, regulatory and commercial risks described elsewhere in this "*Risk Factors*" section. Accordingly, we cannot assure you that we will ever be able to discover, develop, obtain regulatory approval of, commercialize or generate significant revenue from our product candidates.

We have never commercialized a fibroblast cell-based therapy product candidate before and may lack the necessary expertise, personnel and resources to successfully commercialize any product candidates, if approved, on our own or together with suitable collaborators.

We have never commercialized a fibroblast cell-based therapy product candidate, and we currently have no sales force, marketing or distribution capabilities. To achieve commercial success for our current product candidates, which we may license to others, we will rely on the assistance and guidance of those collaborators. For any approved product candidates for which we retain commercialization rights, we will have to develop our own sales, marketing and supply organization or outsource these activities to a third party.

Factors that may affect our ability to commercialize our product candidates on our own include recruiting and retaining adequate numbers of effective sales and marketing personnel, obtaining access to or persuading adequate numbers of physicians to prescribe our product candidates and other unforeseen costs associated with creating an independent sales and marketing organization. Developing a sales and marketing organization will be expensive and time-consuming and could delay the launch of our product candidates, if approved. We may not be able to build an effective sales and marketing organization. If we are unable to build our own distribution and marketing capabilities or to find suitable partners for the commercialization of our product candidates, we may not generate revenues from them or be able to reach or sustain profitability.

We face significant competition, and if our competitors develop and market technologies or products more rapidly than we do or that are more effective, safer or less expensive than the product candidates we develop, our commercial opportunities will be negatively impacted.

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary and novel products and product candidates. Our competitors have developed, are developing or may develop products, product candidates and processes competitive with our product candidates. Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future. We believe that a significant number of products are currently under development, and may become commercially available in the future, for the treatment of conditions for which we may attempt to develop product candidates. See "*Business—Competition*" for additional details. In addition, our products may need to compete with off-label drugs used by physicians to treat the indications for which we seek approval. This may make it difficult for us to replace existing therapies with our products.

Many current and potential competitors have significantly greater financial, manufacturing, marketing, drug development, technical and human resources and commercial expertise than we do. Large pharmaceutical and biotechnology companies, in particular, have extensive experience in clinical testing, obtaining regulatory approvals, recruiting patients and manufacturing biotechnology products. These companies also have significantly greater research and marketing capabilities than we do and may also have products that have been approved or are in late stages of development, and collaborative arrangements in our target markets with leading companies and research institutions. Established pharmaceutical and biotechnology companies may also invest heavily to accelerate discovery and development of novel compounds or to in-license novel compounds that could make the product candidates that we develop obsolete. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies, as well as in acquiring technologies complementary to, or necessary for, our programs. As a result, our competitors may succeed in obtaining approval from the FDA, the EMA or other comparable foreign regulatory authorities or in discovering, developing and commercializing products in our field before we do.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe effects, are more convenient, have a broader label, are marketed more effectively, are reimbursed or are less expensive than any product candidates that we may develop. Our competitors also may obtain marketing approval from the FDA, the EMA or other comparable foreign regulatory authorities for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. Even if the product candidates we develop achieve marketing approval, they may be priced at a significant premium over competitive products if any have been approved by then, resulting in reduced competitiveness. Technological advances or products developed by our competitors may render our technologies or product candidates obsolete, less competitive or uneconomical. If we are unable to compete effectively, our opportunity to generate revenue from the sale of any products we may develop, if approved, could be adversely affected.

We will be a "controlled company" within the meaning of the Nasdaq Stock Market Rules after this offering because our insiders will beneficially own more than 50% of the voting power of our outstanding voting securities.

Upon completion of this offering, our founder and Chief Executive Officer, Pete O'Heeron, will collectively beneficially own approximately 59% of the voting power of our outstanding voting securities and we will be a "controlled company" within the meaning of the listing rules of The Nasdaq Stock Market LLC. We may rely on certain exemptions from corporate governance rules, including an exemption from the rule that a majority of our board of directors must be independent directors. Although we currently do not intend to rely on the "controlled company" exemption under the Nasdaq listing rules, we could elect to rely on this exemption in the future. In the event that we elected to rely on the "controlled company" exemption, a majority of the members of our board of directors might not be independent directors, and our nominating and corporate governance and compensation committees might not consist entirely of independent directors. Our status as a controlled company could cause our shares of common stock to be less attractive to certain investors or otherwise harm our trading price. As a result, you would not have the same protection afforded to shareholders of companies that are subject to these corporate governance requirements.

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives. We will be subject to financial reporting and other requirements for which our accounting and other management systems and resources may not be adequately prepared.

As a public company, and particularly after we are no longer an emerging growth company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. In addition, the federal securities laws, including the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, and rules and regulations subsequently implemented by the SEC and Nasdaq have imposed various requirements on public companies, including requirements to file annual, quarterly, and event driven reports with respect to their business and financial condition, and to establish and maintain effective disclosure and financial controls and corporate governance practices. These rules and regulations will increase our legal and financial compliance costs, make certain activities more time-consuming and costly, and require our management and other personnel to devote a substantial amount of time to compliance initiatives.

Despite our best efforts, we may not be able to produce reliable financial statements or file such financial statements as part of a periodic report in a timely manner with the SEC or comply with Nasdaq listing requirements. We also expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance.

Pursuant to Section 404 of the Sarbanes-Oxley Act, we will be required to furnish a report by our management on our internal control over financial reporting, including an attestation report on internal control over financial reporting issued by our independent registered public accounting firm, beginning with the first full year after we become a public company. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with Section 404 of the Sarbanes-Oxley Act, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. We will need to continue to dedicate internal resources, potentially engage outside consultants, adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that neither we nor our independent registered public accounting firm will be able to conclude within the prescribed timeframe that our internal control over financial reporting is effective as required by Section 404 of the Sarbanes-Oxley Act. This could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements. We could also become subject to investigations by the SEC or other regulatory authorities, which could require additional financial and management resources.

As a public company, we will also be required to maintain disclosure controls and procedures. Disclosure controls and procedures means our controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the rules and forms of the SEC. We do not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. We believe a control system, no matter how well-designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Due to the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been detected. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and any design may not succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

We have identified a material weakness in our internal control over financial reporting due to lack of segregation of duties. Failure to maintain effective internal control over financial reporting could cause our investors to lose confidence in us and adversely affect the market price of our common stock. If our internal controls over financial reporting are not effective, we may not be able to accurately report our financial results or prevent fraud.

During the preparation of our financial statements for the fiscal year ended December 31, 2022, our management identified a material weakness in our internal control over financial reporting due to a lack of segregation of duties. A material weakness is defined as 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 on a timely basis.

Specifically, our management identified a deficiency in our internal controls within the financial reporting function that resulted from a lack of segregation of duties for the period of time covered by our financial statements prior to our Chief Financial Officer joining us in June 2022 when all financial functions were handled by a single individual.

With the addition of our Chief Financial Officer and the changes made to our accounting and financial reporting processes and internal controls during the last half of fiscal year 2022, we have strengthened our internal controls and will continue to evaluate segregation of duties and take initiatives to improve our internal controls over financial reporting as we grow. However, the implementation of these initiatives may not fully address the material weakness in our internal control over financial reporting and we cannot assure you that we will not identify other material weaknesses or deficiencies, which could negatively impact our results of operations in future periods.

Risks Relating to Our Dependence on Third Parties

We rely, and expect to continue to rely, on third parties, including independent clinical investigators and CROs, to conduct certain aspects of our preclinical studies and clinical trials. If these third parties do not successfully carry out their contractual duties, comply with applicable regulatory requirements or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize our product candidates and our business could be adversely harmed.

We have relied upon and plan to continue to rely upon third parties, including independent clinical investigators and third-party CROs, to conduct certain aspects of our preclinical studies and clinical trials and to monitor and manage data for our ongoing preclinical and clinical programs. We rely on these parties for execution of our preclinical studies and clinical trials, and control only certain aspects of their activities. Nevertheless, we are responsible for ensuring that each of our studies and trials is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards, and our reliance on these third parties does not relieve us of our regulatory responsibilities. We, our third-party contractors and CROs are required to comply with GCP requirements, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for all of our product candidates in clinical development. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of these third parties or our CROs fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA, the EMA or comparable foreign regulatory authorities may require us to perform additional 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 manufactured under cGMP regulations. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process. Moreover, our business may be adversely affected if any of these third parties violates federal or state fraud and abuse or false claims laws and regulations or healthcare privacy and security laws.

Further, there is no guarantee that any such CROs, investigators or other third parties on which we rely will devote adequate time and resources to our development activities or perform as contractually required. These third parties may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other product development activities, which could affect their performance on our behalf. If independent investigators or CROs fail to devote sufficient resources to the development of our product candidates, or 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 clinical data they obtain is compromised due to the failure to adhere to our clinical 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. Consequently, our results of operations and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenues could be delayed or halted entirely.

Our CROs have the right to terminate their agreements with us in the event of an uncured material breach. In addition, some of our CROs have an ability to terminate their respective agreements with us if it can be reasonably demonstrated that the safety of the subjects participating in our clinical trials warrants such termination, if we make a general assignment for the benefit of our creditors or if we are liquidated.

If any of our relationships with these third-party CROs terminate, we may not be able to enter into arrangements with alternative CROs or to do so on commercially reasonable terms. Switching or adding additional CROs involves additional cost and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. Additionally, CROs may lack the capacity to absorb higher workloads or take on additional capacity to support our needs. Though we carefully manage our relationships with our CROs, 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 impact on our business, financial condition and prospects.

If we decide to establish additional collaborations but are not able to establish those collaborations on commercially reasonable terms, we may have to alter our development and commercialization plans.

Our product candidate development programs and the potential commercialization of our product candidates will require substantial additional cash to fund expenses. We may continue to seek to selectively form collaborations to expand our capabilities, potentially accelerate research and development activities and provide for commercialization activities by third parties. Any of these relationships may require us to incur non-recurring and other charges, increase our near and long-term expenditures, issue securities that dilute our existing stockholders, or disrupt our management and business.

We would face significant competition in seeking appropriate collaborators and the negotiation process is time-consuming and complex. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the design or results of clinical trials, the likelihood of approval by the FDA, the EMA or comparable foreign regulatory authorities, the potential market for the subject product candidate, the costs and complexities of manufacturing and delivering such product candidate to patients, the potential of competing products, the existence of uncertainty with respect to our ownership of intellectual property and industry and market conditions generally. The potential collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such collaboration could be more attractive than the one with us for our product candidate. Further, we may not be successful in our efforts to establish a collaboration or other alternative arrangements for future product candidates because they may be deemed to be at too early of a stage of development for collaborative effort and third parties may not view them as having the requisite potential to demonstrate safety and efficacy.

In addition, mergers among large biopharmaceutical companies may result in a reduced number of potential future collaborators. Even if we are successful in entering into a collaboration, the terms and conditions of that collaboration may restrict us from entering into future agreements on certain terms with potential collaborators.

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

In the future we may enter into collaborations with third parties for the development and commercialization of product candidates. If those collaborations are not successful, we may not be able to capitalize on the market potential of these product candidates.

We may in the future seek third-party collaborators for the development and commercialization of one or more of our product candidates. Our likely collaborators for any future collaboration arrangements include large and mid-size biopharmaceutical companies, regional and national biopharmaceutical companies and biotechnology companies. We have and will likely have limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our product candidates. Our ability to generate revenues from these arrangements will depend on our collaborators' abilities and efforts to successfully perform the functions assigned to them in these arrangements. Collaborations involving our product candidates could pose numerous risks to us, including the following:

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

- collaborators may deemphasize or not pursue development and commercialization of our product candidates or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborators' strategic focus, including as a result of a sale or disposition of a business unit or development function, or available funding or external factors such as an acquisition that diverts resources or creates competing priorities;

- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;

- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;

- a collaborator with marketing and distribution rights to multiple products may not commit sufficient resources to the marketing and distribution of our product candidates relative to other products;

- collaborators may not properly obtain, maintain, defend or enforce our intellectual property rights or may use our proprietary information and intellectual property in such a way as to invite litigation or other intellectual property-related proceedings that could jeopardize or invalidate our proprietary information and intellectual property or expose us to potential litigation or other intellectual property-related proceedings;

- disputes may arise between the collaborators and us that result in the delay or termination of the research, development or commercialization of our product candidates or that result in costly litigation or arbitration that diverts management attention and resources;

- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates;

- collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all; and

- if a collaborator of ours were to be involved in a business combination, the continued pursuit and emphasis on our product candidate development or commercialization program could be delayed, diminished or terminated.

Our employees, independent contractors, consultants, commercial collaborators, principal investigators, CROs, suppliers and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could have an adverse effect on our results of operations.

We are exposed to the risk that our employees, independent contractors, consultants, commercial collaborators, principal investigators, CROs, suppliers and vendors may engage in misconduct or other improper activities. Misconduct by these parties could include failures to comply with FDA regulations, provide accurate information to the FDA, comply with federal and state health care fraud and abuse laws and regulations, accurately report financial information or data or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the health care industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, 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 commission, customer incentive programs and other business arrangements. Misconduct by these parties could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter misconduct by these parties, 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 comply with these laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of significant penalties, including civil, criminal and administrative penalties, damages, fines, disgorgement, individual imprisonment, exclusion from participation in government funded healthcare programs, such as Medicare and Medicaid, integrity oversight and reporting obligations, contractual damages, reputational harm, diminished profits and future earnings and the curtailment or restructuring of our operations.

Risks Related to Manufacturing

Manufacturing cell therapy products is complex and subject to both human and systemic risks. Our third-party manufacturers or we may encounter difficulties in production and sourcing and may be subject to variations and supply constraints of critical components. If we or any of our third-party manufacturers encounter such difficulties, our ability to supply our product candidates for clinical trials or our products for patients, if approved, could be delayed or prevented.

The manufacture of biologic cell therapy product candidates, and products, if approved, is complex and requires significant expertise and capital investment, including developing advanced manufacturing techniques and process controls. Manufacturers of biologic products often encounter difficulties in production and sourcing, particularly in scaling up or out, validating the production process, and assuring high reliability of the manufacturing processes (including the absence of contamination), in light of variations and supply constraints of critical components. These problems include logistics and shipping, difficulties with production costs and yields, quality control, including consistency, stability, purity, and efficacy of the product, product testing, operator error, and availability of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. Furthermore, if contaminants are discovered in our supply of our product candidates or in the manufacturing facilities, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. We cannot assure you that any stability, purity, and efficacy failures, deficiencies, or other issues relating to manufacturing our product candidates will not occur in the future.

Additionally, our product candidates are derived from cells collected from humans. Such cells may vary in type and quality as the donors may vary in age, medical history and many other factors. We have strict specifications for donor cell material and our product candidates. The donor cell material variability may exceed our manufacturing process capability or deviate from the specified ranges and result in failure in the production of the cell therapy product, lower quality batches, or even require adjustments to the specifications approved by authorities. The donor cell material may also be variable in factors that we currently may not be able to detect with the analytical methods used or may not know how to measure. We may also discover failures with the material after production. As a result, we may not be able to deliver the quality and consistency of our cell therapy products that we need or may need to re-collect cell material which can increase costs and/or cause delay, adversely impact patient outcomes and otherwise harm our clinical trials, reputation, business and prospects.

We may fail to manage the logistics of collecting and shipping patient material to the manufacturing site, shipping the product candidate back to the relevant parties, and experiencing delays or shortages of certain clinical or commercial-grade supplies and components. Logistical and shipment delays and problems caused by us, our vendors, or other factors not in our control, including business interruptions, global supply chain issues, and weather, could prevent or delay the delivery of product candidates to patients. Additionally, we have to maintain a complex chain of identity and chain of custody with respect to donor material as it moves to the manufacturing facility, through the manufacturing processes, and ultimately to a patient. Failure to maintain a chain of identity and chain of custody could result in patient death, loss of product, or regulatory action.

The transfer or production of our cell banks to a contract development manufacturing organization may fail and result in delays, additional costs, or technical failure.

We currently purchase our cell therapy product candidates from a contract development and manufacturing organization, or CDMO. We are in the process of contracting with a CDMO, for the transfer of our experimental cell bank to produce our master cell bank, working cell bank and our fibroblast cell-based product candidates to enable clinical trials. If the transfer of our experimental cell bank to the CDMO is not successful, we may encounter delays, additional costs, or technical failure of one or more of our product candidates. Similarly, if the CDMO is unable to produce from the experimental cell bank our master cell bank, working cell bank and our fibroblast cell-based product candidates to enable clinical trials, we may encounter delays, additional costs, or technical failure of one or more of our product candidates.

Changes in the methods of product candidate manufacturing or formulation may result in additional costs or delay.

As product candidates proceed through preclinical studies to late-stage clinical trials towards potential marketing approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods, formulation, materials and processes, are altered along the way in an effort to optimize processes and product characteristics. Such alterations can also occur due to changes in manufacturers. Such changes carry the risk that they will not achieve their intended objectives. Any such changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials conducted with product candidates produced using the modified manufacturing methods, materials and processes. Such changes may also require additional testing, FDA notification or FDA approval. This could delay the completion of clinical trials, require the conduct of bridging clinical trials or the repetition of one or more clinical trials beyond those we currently anticipate, increase clinical trial costs, delay approval of our product candidates and jeopardize our ability to commercialize our product candidates if approved. In addition, we may be required to make significant changes to our upstream and downstream processes across our pipeline, which could delay the development of future product candidates.

If we or our third-party manufacturers use hazardous and biological materials in a manner that causes injury or violates applicable law, we may be liable for damages.

Research and development activities involve the controlled use of potentially hazardous substances, including chemical and biological materials, by us and our third-party manufacturers. We currently outsource all manufacturing to third parties. Still, we and our manufacturers are subject to federal, state and local laws and regulations in the United States governing the use, manufacture, storage, handling and disposal of medical and hazardous materials. Although we believe that our manufacturers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from medical or hazardous materials. As a result of any such contamination or injury, we may incur liability, or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not currently have any insurance for liabilities arising from medical or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development and production efforts, which could harm our business, prospects, financial condition or results of operations.

We rely on third parties for our manufacturing process and may, in the future, depend on third-party manufacturers for our product candidates, and this increases the risk related to the timely and sufficient production of our product candidates.

We do not have complete control over all aspects of the manufacturing process of, and are dependent on, our contract manufacturing partners for compliance with cGMP regulations for manufacturing our cell therapy product candidates. Third-party manufacturers may be unable to comply with cGMP regulations or similar regulatory requirements outside the United States. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA, the EMA or others, they will not be able to secure and/or maintain marketing approval for their manufacturing facilities. In addition, we do not have control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA, the EMA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain marketing approval for or market our product candidates, if approved. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our product candidates and harm our business and results of operations. Furthermore, the raw materials for our product candidates may be sourced, in some cases, from a single-source supplier. If we were to experience an unexpected loss of supply of any of our product candidates or any of our future product candidates for any reason, whether as a result of manufacturing, supply, or storage issues or otherwise, we could experience delays, disruptions, suspensions or terminations of, or be required to restart or repeat, any pending or ongoing clinical trials.

We currently rely on third-party manufacturers to produce our product candidates for use in development and commercialization under the guidance of members of our organization. In the event that we or any of our third-party manufacturers fail to comply with such requirements or to perform with certain requirements in relation to quality, timing, or otherwise, or if our supply of components or other materials becomes limited or interrupted for other reasons, we may be forced to enter into an agreement with another third party, which we may not be able to do on commercially reasonable terms, if at all. In particular, any replacement of our third-party manufacturers could require significant effort and expertise because there may be a limited number of qualified replacements. In some cases, the technical skills or technology required to manufacture our product candidates may be unique or proprietary to us or the third-party manufacturer. We may have difficulty transferring such skills or technology to another third party, and a feasible alternative may not exist. In addition, certain of our product candidates and our own proprietary methods have never been produced or implemented outside of our company. Therefore, we may experience delays in our development programs if we attempt to establish new third-party manufacturing arrangements for these product candidates or methods. These factors would increase our reliance on such manufacturers or require us to obtain a license from such manufacturers in order to have another third party manufacture our product candidates. If we are required to or voluntarily stop manufacturing our product candidates for any reason, we will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines and that the product produced is equivalent to that produced in our facility. The delays associated with the verification of a new manufacturer and equivalent product could negatively affect our ability to develop product candidates in a timely manner or within budget.

Our or a third party's failure to execute our manufacturing requirements, do so on commercially reasonable terms and timelines, and comply with cGMP requirements could adversely affect our business in a number of ways, including:

- inability to meet our product specifications and quality requirements consistently;
- inability to initiate or continue clinical trials of our product candidates under development;
- delays in submitting regulatory applications or receiving marketing approvals for our product candidates, if at all;
- inability to commercialize any product candidates that receive marketing approval on a timely basis;
- loss of the cooperation of future collaborators;
- subjecting third-party manufacturing facilities or our manufacturing facilities to additional inspections by regulatory authorities;
- requirements to cease development or to recall batches of our product candidates; and
- in the event of approval to market and commercialize our product candidates, an inability to meet commercial demands for our product candidates or any future product candidates.

Any contamination or interruption in our manufacturing processes, shortages of raw materials, or failure of our suppliers to deliver necessary components could result in delays in our clinical development or marketing schedules.

Given the nature of cell therapy manufacturing, there is a risk of contamination. Any contamination could adversely affect our ability to produce product candidates on schedule and could, therefore, harm our results of operations and cause reputational damage. Additionally, although our cell therapies are tested for contamination prior to release if a contaminated product candidate was administered to a patient, it could result in harm to the patient. Some of the raw materials required in our manufacturing process are derived from biological sources. Such raw materials are difficult to procure and may be subject to contamination or recall. A material shortage, contamination, recall, or restriction on the use of biologically derived substances in the manufacture of our product candidates could adversely impact or disrupt the commercial manufacturing or the production of clinical material, which could adversely affect our development timelines and our business, financial condition, results of operations and prospects.

Risks Related to Legal and Regulatory Compliance Matters

Our relationships with healthcare professionals, clinical investigators, CROs and third-party payors in connection with our current and future business activities may be subject to federal and state healthcare fraud and abuse laws, false claims laws, transparency laws, government price reporting, and health information privacy and security laws, which could expose us to, among other things, criminal sanctions, civil penalties, contractual damages, exclusion from governmental healthcare programs, reputational harm, administrative burdens and diminished profits and future earnings.

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

- the federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or paying any remuneration (including any kickback, bribe or rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for the purchase, lease, order, arrangement, or recommendation of any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs. A person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it to have committed a violation. Violations are subject to civil fines and criminal penalties for each violation, plus up to three times the remuneration involved, imprisonment, and exclusion from government healthcare programs. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act or federal civil money penalties;

- the federal civil and criminal false claims laws and civil monetary penalty laws, such as the federal False Claims Act, which impose criminal and civil penalties and authorize civil whistleblower or qui tam actions, against individuals or entities for, among other things: knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent; knowingly making, using or causing to be made or used, a false statement of record material to a false or fraudulent claim or obligation to pay or transmit money or property to the federal government or knowingly concealing or knowingly and improperly avoiding or decreasing an obligation to pay money to the federal government. Manufacturers can be held liable under the federal False Claims Act even when they do not submit claims directly to government payors if they are deemed to "cause" the submission of false or fraudulent claims. The federal False Claims Act also permits a private individual acting as a "whistleblower" to bring actions on behalf of the federal government alleging violations of the federal False Claims Act and to share in any monetary recovery;

- the Health Insurance Portability and Accountability Act of 1996, or HIPAA, which prohibits, among other things, a person from knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payor (e.g., public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false, fictitious, or fraudulent statements or representations in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;

- HIPAA, as further amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and their respective implementing regulations, including the Final Omnibus Rule published in January 2013, which impose certain requirements on certain covered healthcare providers, health plans and healthcare clearinghouses, as well as their respective business associates, independent contractors or agents of covered entities, that perform services for them that involve the use, creation, maintenance, receipt or disclosure of, individually identifiable health information, relating to the privacy, security and transmission of individually identifiable health information. HITECH also created new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, there are additional federal, state and non-U.S. laws which govern the privacy and security of health and other personal information in certain circumstances to which we may be subject and many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts;

- federal government price reporting laws, which require manufacturers to calculate and report complex pricing metrics in an accurate and timely manner to government programs;

- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers;

- The ACA, including the provision commonly referred to as the Physician Payments Sunshine Act and its implementing regulations, which require applicable manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program to report annually to the U.S. Centers for Medicare & Medicaid Services, or CMS, within the U.S. Department of Health and Human Services, information related to payments or other transfers of value made to physicians, nurse practitioners, certified nurse anesthetists, physician assistants, clinical nurse specialists, and certified nurse midwives as well as teaching hospitals and to disclose ownership and investment interests held by physicians and their immediate family members; and

- many state laws that govern the privacy of personal information in specified circumstances. For example, in California, the California Consumer Privacy Act, or the CCPA, which went into effect on January 1, 2020, establishes a new privacy framework for covered businesses by creating an expanded definition of personal information, establishing new data privacy rights for consumers in the State of California, imposing special rules on the sale of personal information, and creating a new and potentially severe statutory damages framework for violations of the CCPA and for businesses that fail to implement reasonable security procedures and practices to prevent data breaches. While clinical trial data and information governed by HIPAA are currently exempt from the CCPA, other personal information collection practices may be subject to the CCPA and possible changes to the CCPA may broaden its scope.

Additionally, we are subject to state and foreign equivalents of each of the healthcare laws and regulations described above, among others, some of which may be broader in scope and may apply regardless of the payor. Many U.S. states have adopted laws similar to the federal Anti-Kickback Statute and False Claims Act, and may apply to our business practices, including, but not limited to, research, distribution, sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental payors, including private insurers. In addition, some states have passed laws that require biopharmaceutical companies to comply with the April 2003 Office of Inspector General Compliance Program Guidance for Pharmaceutical Manufacturers and/or the Pharmaceutical Research and Manufacturers of America's Code on Interactions with Healthcare Professionals. Several states also impose other marketing restrictions or require biopharmaceutical companies to make marketing or price disclosures to the state and require the registration of biopharmaceutical sales representatives. Privacy and data protection laws from outside of the United States, including, for example, the European Union General Data Protection Regulation and the UK Data Protection Act 2018, or, collectively, the GDPR, also govern the privacy and security of personal information, including health information in some circumstances, and many of these laws differ from each other in significant ways, thus complicating compliance efforts. In addition, in the United States, there are a number of states that have enacted laws that govern the privacy and security of personal information, many of which differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts. 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.

The scope and enforcement of each of these laws is uncertain and subject to rapid change in the current environment of healthcare reform, especially in light of the lack of applicable precedent and regulations. Federal and state enforcement bodies have recently increased their scrutiny of interactions between healthcare companies and healthcare providers, which has led to a number of investigations, prosecutions, convictions and settlements in the healthcare industry. Ensuring business arrangements comply with applicable healthcare and privacy laws, as well as responding to possible investigations by government authorities, can be time and resource-consuming and can divert a company's attention from the business.

Ensuring that our internal operations and future business arrangements with third parties comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices do not comply with current or future statutes, regulations, agency guidance or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of the laws described above or any other governmental laws and regulations that may apply to us, we may be subject to significant penalties, including administrative, civil and criminal penalties, damages, fines, disgorgement, the exclusion from participation in federal and state healthcare programs, individual imprisonment, reputational harm and the curtailment or restructuring of our operations, as well as additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws. Further, defending against any such actions can be costly and time consuming, and may require significant financial and personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired. If any of the physicians or other providers or entities with whom we do, or expect to do, business is found to not be in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs and imprisonment. If any of the above occur, our ability to operate our business and our results of operations could be adversely affected.

We may be or become subject to evolving global data protection laws and regulations, which may require us to incur substantial compliance costs, and any failure or perceived failure by us to comply with such laws and regulations may harm our business and operations.

The global data protection landscape is rapidly evolving, and we may be or become subject to or affected by numerous federal, state and foreign laws and regulations, as well as regulatory guidance, governing the collection, use, disclosure, transfer, security and processing of personal data, such as information that we collect about participants and healthcare providers in connection with clinical trials. Implementation standards and enforcement practices are likely to remain uncertain for the foreseeable future, which may create uncertainty in our business, affect our ability to operate in certain jurisdictions or to collect, store, transfer use and share personal data, result in liability or impose additional compliance or other costs on us. Any failure or perceived failure by us to comply with federal, state, or foreign laws or self-regulatory standards could result in negative publicity, diversion of management time and effort and proceedings against us by governmental entities or others. For example, states, such as California, Virginia, Colorado, Utah and Connecticut have recently enacted consumer privacy laws that grant rights to data subjects and places privacy and security obligations on entities handling personal data of consumers or households. Some observers note that the CCPA and similar legislation could mark the beginning of a trend toward more stringent privacy legislation in the United States, which could increase our potential liability and adversely affect our business.

In addition to our operations in the United States, which may be subject to healthcare and other laws relating to the privacy and security of health information and other personal information, we may seek to conduct clinical trials in the United Kingdom or the European Economic Area, or the EEA, and may become subject to additional European data privacy laws, regulations and guidelines. We will be subject to the data protection laws of the European Union and United Kingdom in relation to personal data we collect from these territories. These laws impose additional obligations and risk upon our business, including substantial expenses and changes to business operations that are required to comply with these laws. The withdrawal of the United Kingdom from the European Union, or Brexit, and the subsequent separation of the data protection regimes of these territories mean we are required to comply with separate data protection laws in the European Union and United Kingdom, which may lead to additional compliance costs and could increase our overall risk.

The GDPR, which deals with the processing of personal data and on the free movement of such data, imposes a broad range of strict requirements, including requirements relating to having lawful bases for processing personal data and transferring such information outside the EEA/UK, including to the United States, providing details to those individuals regarding the processing of their personal data, keeping personal data secure, having data processing agreements with third parties who process personal data, responding to individuals' requests to exercise their rights in respect of their personal data, reporting security breaches involving personal data to the competent national data protection authority and affected individuals, appointing data protection officers, conducting data protection impact assessments and record-keeping.

The GDPR imposes strict rules on the transfer of personal data out of the EEA/UK to countries not regarded by European Commission and the United Kingdom government as providing adequate protection, or the third countries, including the United States. These transfers are prohibited unless an appropriate safeguard specified by data protection laws is implemented, such as the Standard Contractual Clauses, or the SCCs, approved by the European Commission, or a derogation applies. The UK has published its own transfer mechanism, the International Data Transfer Agreement and International Data Transfer Addendum, which enables transfers from the UK and has implemented a similar Transfer Equivalence Test. The international transfer obligations under the EU and UK data protection regimes require effort and cost and may result in us needing to make strategic considerations around where EEA/UK personal data is located and which service providers we utilize for the processing of EEA/UK personal data, particularly as the enforcement around GDPR international transfer compliance obligations is currently unclear. The UK Government has also now introduced a Data Protection and Digital Information Bill, or the UK Bill, into the UK legislative process with the intention for this bill to reform the UK's data protection regime. If passed, the final version of the UK Bill may have the effect of further altering the similarities between the UK and EU data protection regime. This may lead to additional compliance costs and could increase our overall risk.

We cannot assure you that any efforts to comply with any obligations under European privacy laws will be sufficient. If we are investigated by a European data protection authority, we may face fines and other penalties. Any such investigation or charges by European data protection authorities could have a negative effect on our reputation and materially harm our business.

Our business entails a significant risk of product liability and if we are unable to obtain sufficient insurance coverage such inability could have an adverse effect on our business and financial condition.

Our business exposes us to significant product liability risks inherent in the development, testing, manufacturing and marketing of therapeutic treatments. Product liability claims could delay or prevent completion of our development programs. If we succeed in marketing product candidates, such claims could result in an FDA, EMA or other regulatory authority investigation of the safety and effectiveness of our product candidates, our manufacturing processes and facilities or our marketing programs. FDA, EMA or other regulatory authority investigations could potentially lead to a recall of our product candidates or more serious enforcement action, limitations on the approved indications for which they may be used or suspension or withdrawal of approvals. Regardless of the merits or eventual outcome, liability claims may also result in decreased demand for our product candidates, if approved, injury to our reputation, costs to defend the related litigation, a diversion of management's time and our resources and substantial monetary awards to trial participants or patients. We currently have product liability insurance that we believe is appropriate for our stage of development and may need to obtain higher levels prior to marketing any of our product candidates, if approved. Any insurance we have or may obtain may not provide sufficient coverage against potential liabilities. Furthermore, clinical trial and product liability insurance is becoming increasingly expensive. As a result, we may be unable to obtain sufficient insurance at a reasonable cost to protect us against losses caused by product liability claims that could have an adverse effect on our business and financial condition.

Any product candidates we develop may become subject to unfavorable third-party coverage and reimbursement practices, as well as pricing regulations.

The availability and extent of coverage and adequate reimbursement by third-party payors, including government health administration authorities, private health coverage insurers, managed care organizations and other third-party payors is essential for most patients to be able to afford expensive treatments. Sales of any of our product candidates that receive marketing approval will depend substantially, both in the United States and internationally, on the extent to which the costs of our product candidates will be covered and reimbursed by third-party payors. If reimbursement is not available, or is available only to limited levels, we may not be able to successfully commercialize our product candidates. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow us to establish or maintain pricing sufficient to realize an adequate return on our investment. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If coverage and reimbursement are not available or reimbursement is available only to limited levels, we may not successfully commercialize any product candidate for which we obtain marketing approval. For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs.

There is significant uncertainty related to third-party payor coverage and reimbursement of newly approved products. In the United States, no uniform policy of coverage and reimbursement for products exists among third-party payors and coverage and reimbursement levels for products can differ significantly from payor to payor. The Medicare and Medicaid programs increasingly are used as models for how private payors and other governmental payors develop their coverage and reimbursement policies for drugs and biologics. However, one third-party payor's determination to provide coverage for a product candidate does not assure that other payors will also provide coverage for the product candidate. As a result, the coverage determination process is often time-consuming and costly. This process will require us to provide scientific and clinical support for the use of our product candidates to each third-party payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. Factors payors consider in determining reimbursement are based on whether the product is: (i) a covered benefit under its health plan; (ii) safe, effective and medically necessary; (iii) appropriate for the specific patient; (iv) cost-effective; and (v) neither experimental nor investigational.

Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Further, such payors are increasingly challenging the price, examining the medical necessity and reviewing the cost effectiveness of medical product candidates. There may be especially significant delays in obtaining coverage and reimbursement for newly approved drugs. Third-party payors may limit coverage to specific product candidates on an approved list, known as a formulary, which might not include all FDA-approved drugs for a particular indication. We may need to conduct expensive pharmacoeconomic studies to demonstrate the medical necessity and cost effectiveness of our product candidates. Nonetheless, our product candidates may not be considered medically necessary or cost effective. We cannot be sure that coverage and reimbursement will be available for any product candidate that we commercialize and, if reimbursement is available, what the level of reimbursement will be.

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on cost containment initiatives in Europe, Canada and other countries has and will continue to put pressure on the pricing and usage of therapeutics such as our product candidates. In many countries, particularly the countries of the European Union, medical product prices are subject to varying price control mechanisms as part of national health systems. In these countries, pricing negotiations with governmental authorities can take considerable time after a product receives marketing approval. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies. In general, product prices under such systems are substantially lower than in the United States. Other countries allow companies to fix their own prices for products, but monitor and control company profits. Additional foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our product candidates. Accordingly, in markets outside the United States, the reimbursement for our product candidates may be reduced compared with the United States and may be insufficient to generate commercially reasonable revenue and profits.

If we are unable to establish or sustain coverage and adequate reimbursement for any future product candidates from third-party payors, the adoption of those product candidates and sales revenue will be adversely affected, which, in turn, could adversely affect the ability to market or sell those product candidates, if approved. Coverage policies and third-party payor reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more product candidates for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

We face potential liability related to the privacy of health information we obtain from clinical trials sponsored by us.

Most healthcare providers, including research institutions from which we obtain patient health information, are subject to privacy and security regulations promulgated under HIPAA, as amended by the HITECH. We are not currently classified as a covered entity or business associate under HIPAA and thus are not directly subject to its requirements or penalties. However, any person may be prosecuted under HIPAA's criminal provisions either directly or under aiding-and-abetting or conspiracy principles. Consequently, depending on the facts and circumstances, we could face substantial criminal penalties if we knowingly receive individually identifiable health information from a HIPAA-covered healthcare provider or research institution that has not satisfied HIPAA's requirements for disclosure of individually identifiable health information. In addition, we may maintain sensitive personally identifiable information, including health information, that we receive throughout the clinical trial process, in the course of our research collaborations, and directly from individuals (or their healthcare providers) who enroll in our patient assistance programs. As such, we may be subject to state laws requiring notification of affected individuals and state regulators in the event of a breach of personal information, which is a broader class of information than the health information protected by HIPAA.

Furthermore, certain health privacy laws, data breach notification laws, consumer protection laws and genetic testing laws may apply directly to our operations and/or those of our collaborators and may impose restrictions on our collection, use and dissemination of individuals' health information. Patients about whom we or our collaborators obtain health information, as well as the providers who share this information with us, may have statutory or contractual rights that limit our ability to use and disclose the information. We may be required to expend significant capital and other resources to ensure ongoing compliance with applicable privacy and data security laws. Claims that we have violated individuals' privacy rights or breached our contractual obligations, even if we are not found liable, could be expensive and time consuming to defend and could result in adverse publicity that could harm our business.

If we or third-party contract manufacturing organizations, CROs or other contractors or consultants fail to comply with applicable federal, state or local regulatory requirements, we could be subject to a range of regulatory actions that could affect our or our contractors' ability to develop and commercialize our product candidates and could harm or prevent sales of any affected product candidates that we are able to commercialize, or could substantially increase the costs and expenses of developing, commercializing and marketing our product candidates. Any threatened or actual government enforcement action could also generate adverse publicity and require that we devote substantial resources that could otherwise be used in other aspects of our business. Increasing use of social media could give rise to liability, breaches of data security or reputational damage.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of hazardous and flammable materials, including chemicals and biological materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or commercialization efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

The FDA, the EMA and other comparable foreign regulatory authorities may not accept data from trials conducted in locations outside of their jurisdiction.

We may choose to conduct international clinical trials in the future. The acceptance of study data by the FDA, the EMA or other comparable foreign regulatory authority from clinical trials conducted outside of their respective jurisdictions may be subject to certain conditions. In cases where data from foreign clinical trials are intended to serve as the basis for marketing approval in the United States, the FDA will generally not approve the application on the basis of foreign data alone unless (i) the data are applicable to the United States population and United States medical practice; (ii) the trials are performed by clinical investigators of recognized competence and pursuant to current GCP requirements; and (iii) the FDA is able to validate the data through an on-site inspection or other appropriate mean. Additionally, the FDA's clinical trial requirements, including the adequacy of the patient population studied and statistical powering, must be met. In addition, such foreign trials would be subject to the applicable local laws of the foreign jurisdictions where the trials are conducted. There can be no assurance that the FDA, the EMA or any applicable foreign regulatory authority will accept data from trials conducted outside of its applicable jurisdiction. If the FDA, the EMA or any applicable foreign regulatory authority does not accept such data, it would result in the need for additional trials, which would be costly and time-consuming and delay aspects of our business plan, and which may result in our product candidates not receiving approval for commercialization in the applicable jurisdiction.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our product candidates in other jurisdictions.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction. For example, even if the FDA or the EMA grants marketing approval of a product candidate, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion and reimbursement of the product candidate in those countries. However, a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from those in the United States, including additional preclinical studies or clinical trials as clinical trials conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for our product candidates is also subject to approval.

Obtaining foreign regulatory approvals and establishing and maintaining compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our product candidates in certain countries. If we or any future collaborator fail to comply with the regulatory requirements in international markets or fail to receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed.

Even if our product candidates receive regulatory approval and become products, they will be subject to significant post-marketing regulatory requirements and oversight.

Any regulatory approvals that we may receive for our product candidates will require the submission of reports to regulatory authorities and surveillance to monitor the safety and efficacy of the products, may contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, and may include burdensome post-approval study or risk management requirements. For example, the FDA may require a REMS in order to approve our product candidates, which could entail requirements for a medication guide, physician training and communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA, the EMA or foreign regulatory authorities approve our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for our product candidates will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as on-going compliance with cGMPs and GCP for any clinical trials that we conduct post-approval. In addition, manufacturers of drug products and their facilities are subject to continual review and periodic, unannounced inspections by the FDA and other regulatory authorities for compliance with cGMP regulations and standards. If we or a regulatory agency discover previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facilities where the product is manufactured, a regulatory agency may impose restrictions on that product, the manufacturing facility or us, including requiring recall or withdrawal of the product from the market or suspension of manufacturing. In addition, failure to comply with FDA, the EMA or other comparable foreign regulatory requirements may subject our company to administrative or judicially imposed sanctions, including:

- delays in or the rejection of product approvals;
- restrictions on our ability to conduct clinical trials, including full or partial clinical holds on ongoing or planned trials;

- restrictions on the products, manufacturers or manufacturing process;
- warning or untitled letters;
- civil and criminal penalties;
- injunctions;
- suspension or withdrawal of regulatory approvals;
- product seizures, detentions or import bans;
- voluntary or mandatory product recalls and publicity requirements;
- total or partial suspension of production; and
- imposition of restrictions on operations, including costly new manufacturing requirements.

The occurrence of any event or penalty described above may inhibit our ability to commercialize our product candidates and generate revenue and could require us to expend significant time and resources in response and could generate negative publicity.

The FDA's and other regulatory authorities' policies may change, and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained, and we may not achieve or sustain profitability.

We also cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative or executive action, either in the United States or abroad. For example, certain policies of the current U.S. administration may impact our business and industry. Namely, the previous U.S. administration took several executive actions, including the issuance of a number of Executive Orders, that could impose significant burdens on, or otherwise materially delay, the FDA's ability to engage in routine regulatory and oversight activities such as implementing statutes through rulemaking, issuance of guidance, and review and approval of marketing applications. It is difficult to predict whether or how these executive actions, including the Executive Orders, will be implemented, or whether they will be rescinded or replaced under the new U.S. administration. If these executive actions impose constraints on FDA's ability to engage in oversight and implementation activities in the normal course, our business may be negatively impacted.

The FDA and other regulatory agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses.

If any of our product candidates are approved and we are found to have improperly promoted off-label uses of those products, we may become subject to significant liability. The FDA and other regulatory agencies strictly regulate the promotional claims that may be made about prescription products. In particular, a product may not be promoted for uses that are not approved by the FDA, the EMA or such other regulatory agencies as reflected in the product's approved labeling. If we receive marketing approval for a product candidate, physicians may nevertheless prescribe it to their patients in a manner that is inconsistent with the approved label. If we are found to have promoted such off-label uses, we may become subject to significant liability. The U.S. federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined several companies from engaging in off-label promotion. The government has also required companies to enter into consent decrees or imposed permanent injunctions under which specified promotional conduct is 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 and financial condition.

We may face difficulties from changes to current regulations and future legislation.

Existing regulatory policies may change, and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

For example, the ACA substantially changed the way healthcare is financed by both the government and private insurers, and significantly impacts the U.S. biopharmaceutical industry. Other legislative changes have been proposed and adopted in the United States since the ACA was enacted. These changes include aggregate reductions to Medicare payments and may result in additional reductions in Medicare and other healthcare funding, all of which could have a material adverse effect on customers for our product candidates, if approved, and accordingly, our financial operations.

There have also been several changes and challenges to the 340B drug pricing program, which imposes ceilings on prices that drug manufacturers can charge for medications sold to certain health care facilities. It is unclear how these developments could affect covered hospitals who might purchase our future product candidate and affect the rates we may charge such facilities for our approved product candidates in the future, if any.

Moreover, there has been heightened governmental scrutiny in recent years over the manner in which drug manufacturers set prices for their marketed products, which has resulted in several U.S. 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 pharmaceutical products. The U.S. Congress has indicated that it will continue to seek new legislative measures to control drug costs.

Further, on May 30, 2018, the Right to Try Act was signed into law. The law, among other things, provides a federal framework for certain patients to access certain investigational new product candidates that have completed a Phase 1 clinical trial and that are undergoing investigation for FDA approval. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA permission under the FDA expanded access program. There is no obligation for a drug manufacturer to make its products available to eligible patients as a result of the Right to Try Act.

We expect that the ACA, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we receive for any approved product candidates. 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 product candidates.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for biotechnology products. We cannot be sure whether additional legislative changes will be enacted, or whether 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 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 testing and other requirements.

Risks Related to Our Intellectual Property

Our success depends on our ability to protect our intellectual property and our proprietary technologies.

Our commercial success depends in part on our ability to obtain and maintain patent protection and trade secret protection for our product candidates, proprietary technologies and their uses to operate without infringing the proprietary rights of others. If we or our licensors are unable to protect our intellectual property rights or if our intellectual property rights are inadequate for our technology or our product candidates, our competitive position could be harmed. We and our licensors generally seek to protect our proprietary position by filing patent applications in the United States and abroad related to our product candidates, proprietary technologies and their uses that are important to our business. Our in-licensed patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless, and until, patents issue from such applications, and then only to the extent the issued claims cover the technology. There can be no assurance that our in-licensed patent applications will result in patents being issued or that issued patents will afford sufficient protection against competitors with similar technology, nor can there be any assurance that the patents if issued will not be infringed, designed around, invalidated or rendered unenforceable by third parties. Even issued patents may later be found invalid or unenforceable or may be modified or revoked in proceedings instituted by third parties before various patent offices or in courts. The degree of future protection for our and our licensors' proprietary rights is uncertain. Only limited protection may be available and may not adequately protect our or our licensors' rights or permit us or our licensors to gain or keep any competitive advantage. These uncertainties and/or limitations in our and our licensors' ability to properly protect the intellectual property rights relating to our product candidates could have a material adverse effect on our financial condition and results of operations.

Although we may in-license issued patents in the United States and foreign countries, we cannot be certain that the claims in our other in-licensed U.S. pending patent applications, corresponding international patent applications and patent applications in certain foreign countries will be considered patentable by the United States Patent and Trademark Office, or USPTO, courts in the United States or by the patent offices and courts in foreign countries, nor can we be certain that the claims in our in-licensed issued patents will not be found invalid or unenforceable if challenged.

The patent application process is subject to numerous risks and uncertainties, and there can be no assurance that we or our licensors or any of our potential future collaborators will be successful in protecting our product candidates by obtaining and defending patents. These risks and uncertainties include the following:

- the USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process, the noncompliance with which can result in abandonment or lapse of a patent or patent application, and partial or complete loss of patent rights in the relevant jurisdiction;

- patent applications may not result in any patents being issued;

- patents may be challenged, invalidated, modified, revoked, circumvented, found to be unenforceable or otherwise may not provide any competitive advantage;

- the degree and range of protection any issued patents will afford us against competitors, including whether third parties will find ways to invalidate or otherwise circumvent our patents;

- whether others will apply for or obtain patents claiming aspects similar to those covered by our patents and patent applications;

- whether the patent applications that we own or in-license will result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries;

- our competitors, many of whom have substantially greater resources than we or our licensors do and many of whom have made significant investments in competing technologies, may seek or may have already obtained patents that will limit, interfere with or block our ability to make, use and sell our product candidates;

- there may be significant pressure on the U.S. government and international governmental bodies to limit the scope of patent protection both inside and outside the United States for disease treatments that prove successful, as a matter of public policy regarding worldwide health concerns; and

- countries other than the United States may have patent laws less favorable to patentees than those upheld by U.S. courts, allowing foreign competitors a better opportunity to create, develop and market competing products.

The patent prosecution process is also expensive and time-consuming, and we or our licensors may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner or in all jurisdictions where protection may be commercially advantageous. It is also possible that we or our licensors may not identify patentable aspects of our research and development output before it is too late to obtain patent protection. Moreover, in some circumstances, we do not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, directed to technology that we license, including those from our licensors and from third parties. We also may require the cooperation of our licensors in order to enforce the licensed patent rights, and such cooperation may not be provided. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. We cannot be certain that patent prosecution and maintenance activities by our licensors have been or will be conducted in compliance with applicable laws and regulations, which may affect the validity and enforceability of such patents or any patents that may issue from such applications. If they fail to do so, this could cause us to lose rights in any applicable intellectual property that we in-license, and as a result our ability to develop and commercialize products or product candidates may be adversely affected and we may be unable to prevent competitors from making, using and selling competing products.

Composition of matter patents for biological and pharmaceutical products such as cell therapy product candidates often provide a strong form of intellectual property protection for those types of products, as such patents provide protection without regard to any method of use. We cannot be certain, however, that the claims in our pending patent applications covering the composition of matter of our product candidates will be considered patentable by the USPTO, or by patent offices in foreign countries, or that the claims in any of our issued patents will be considered valid and enforceable by courts in the United States or foreign countries. 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 product 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” for those uses that are covered by our method of use patents. 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.

In addition, although we enter into non-disclosure and confidentiality agreements with parties who have access to patentable aspects of our research and development output, such as our employees, outside scientific collaborators, CROs, third-party manufacturers, consultants, advisors, licensors and other third parties, any of these parties may breach such agreements and disclose such output before a patent application is filed, thereby jeopardizing our ability to seek patent protection.

If the scope of any patent protection our licensors obtain is not sufficiently broad, or if our licensors lose any of the patent protection we license, our ability to prevent our competitors from commercializing similar or identical product candidates would be adversely affected.

The patent position of biopharmaceutical companies generally is highly uncertain, involves complex legal and factual questions, and has been the subject of much litigation in recent years. As a result, the existence, issuance, scope, validity, enforceability and commercial value of our in-licensed patent rights are highly uncertain. Our pending and future in-licensed patent applications may not result in patents being issued that protect our product candidates or that effectively prevent others from commercializing competitive product candidates.

Moreover, the scope of claims in a patent application can be significantly reduced before any claims in a patent is issued, and claim scope can be reinterpreted after issuance. Even if patent applications we license currently or in the future issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us, or otherwise provide us with any competitive advantage. Any patents that we license may be challenged or circumvented by third parties or may be narrowed or invalidated as a result of challenges by third parties. Consequently, we do not know whether our product candidates will be protectable or remain protected by valid and enforceable patents. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner, which could materially adversely affect our business, financial condition, results of operations and prospects.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our licensed-in patents may not cover our product candidates or may be challenged in the courts or patent offices in the United States and abroad. We may be subject to a third party pre-issuance submission of prior art to the USPTO, or become involved in opposition, derivation, revocation, reexamination, post-grant review, or PGR, and *inter partes* review, or IPR, or other similar proceedings in the USPTO or foreign patent offices challenging our patent rights. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to validity of our in-licensed patents, for example, we cannot be certain that there is no invalidating prior art, of which we or our licensors and the patent examiner were unaware during prosecution. There is no assurance that all potentially relevant prior art relating to our in-licensed patents and patent applications or those of our licensors has been found. There is also no assurance that there is not prior art of which we or licensors are aware, but which we do not believe affects the validity or enforceability of a claim in our patents and patent applications or those of our licensors, which may, nonetheless, ultimately be found to affect the validity or enforceability of a claim. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate or render unenforceable, our in-licensed patent rights, allow third parties to commercialize our product candidates and compete directly with us, without payment to us. Such loss of licensed patent rights, loss of exclusivity or in patent claims being narrowed, invalidated or held unenforceable could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our product candidates. Such proceedings also may result in substantial cost and require significant time from our scientists and management, even if the eventual outcome is favorable to us. In addition, if the breadth or strength of protection provided by our patents and patent applications is threatened, regardless of the outcome, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates.

We may not identify relevant third-party patents or may incorrectly interpret the relevance, scope or expiration of a third-party patent, which might adversely affect our ability to develop and market our product candidates.

We cannot guarantee that any of our patent searches or analyses, including the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third-party patent and pending application in the United States and abroad that is relevant to or necessary for the commercialization of our product candidates in any jurisdiction. The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending application may be incorrect, which may negatively impact our ability to market our products. We may incorrectly determine that our products are not covered by a third-party patent or may incorrectly predict whether a third-party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our product candidates. Our failure to identify and correctly interpret relevant patents may negatively impact our ability to develop and market our product candidates.

One aspect of the determination of patentability of our inventions depends on the scope and content of the "prior art," information that was or is deemed available to a person of skill in the relevant art prior to the priority date of the claimed invention. There may be prior art of which we are not aware that may affect the patentability of our patent claims or, if issued, affect the validity or enforceability of a patent claim. Further, we may not be aware of all third-party intellectual property rights potentially relating to our product candidates or their intended uses, and as a result the impact of such third-party intellectual property rights upon the patentability of our own patents and patent applications, as well as the impact of such third-party intellectual property upon our freedom to operate, is highly uncertain. Because patent applications in the United States and most other countries are confidential for typically a period of 18 months after filing, or may not be published at all, we cannot be certain that we were the first to file any patent application related to our product candidates. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Furthermore, for U.S. 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 USPTO to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. For U.S. applications containing a claim not entitled to priority before March 16, 2013, there is a greater level of uncertainty in the patent law in view of the passage of the America Invents Act, which brought into effect significant changes to the U.S. patent laws, including new procedures for challenging pending patent applications and issued patents.

Our patents or pending patent applications may be challenged in the courts or patent offices in the United States and abroad. For example, we may be subject to a third-party pre-issuance submission of prior art to the USPTO or become involved in PGR procedures, oppositions, derivations, reexaminations or IPR proceedings, in the United States or elsewhere, challenging our patent rights or the patent rights of others. An adverse determination in any such challenges may result in loss of exclusivity or in patent claims being narrowed, invalidated, or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and products. In addition, given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. Any failure to obtain or maintain patent protection with respect to our product candidates could have a material adverse effect on our business, financial condition, results of operations and prospects.

In the future, some of our intellectual property may be discovered through government-funded programs and thus may be subject to federal regulations such as "march-in" rights, certain reporting requirements and a preference for U.S.-based companies. Compliance with such regulations may limit our exclusive rights and limit our ability to contract with non-U.S. manufacturers.

Some of the intellectual property rights we may acquire or license in the future may be generated through the use of U.S. government funding and may therefore be subject to certain federal regulations. These U.S. government rights may include retained rights in the intellectual property, including a non-exclusive, non-transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government may have the right, under certain limited circumstances, to require us to grant exclusive, partially exclusive, or non-exclusive licenses to any of these inventions to a third party if it determines that: (i) adequate steps have not been taken to commercialize the invention; (ii) government action is necessary to meet public health or safety needs; or (iii) government action is necessary to meet requirements for public use under federal regulations (also referred to as "march-in rights"). The U.S. government may also have the right to take title to these inventions if the grant recipient fails to disclose the invention to the government or fails to file an application to register the intellectual property within specified time limits. Intellectual property generated under a government funded program is also subject to certain reporting requirements, compliance with which may require us to expend substantial resources. In addition, the U.S. government requires that any products embodying any of these inventions or produced through the use of any of these inventions be manufactured substantially in the United States. This preference for U.S. industry may be waived by the federal agency that provided the funding if the owner or assignee of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible. This preference for U.S. industry may limit our ability to contract with non-U.S. product manufacturers for products covered by such intellectual property. To the extent any of our future intellectual property is also generated through the use of U.S. government funding, the provisions of the Bayh-Dole Act may similarly apply.

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

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

- others may be able to develop products that are similar to our product candidates but that are not covered by the claims of the patents that we own or license;
- we or our licensors or future collaborators might not have been the first to make the inventions covered by the issued patents or pending patent applications that we own or license;
- we or our licensors or future collaborators might not have been the first to file patent applications covering certain of our inventions;

- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- it is possible that our licensors' pending patent applications will not lead to issued patents;
- issued patents that we own or license may be held invalid or unenforceable, as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable;
- we cannot predict the scope of protection of any patent issuing based on our patent applications, including whether the patent applications that we own or in-license will result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries;
- the claims of any patent issuing based on our patent applications may not provide protection against competitors or any competitive advantages, or may be challenged by third parties;
- if enforced, a court may not hold that our patents are valid, enforceable and infringed;
- we may need to initiate litigation or administrative proceedings to enforce and/or defend our patent rights which will be costly whether we win or lose;
- we may choose not to file a patent application in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent application and obtain an issued patent covering such intellectual property;
- we may fail to adequately protect and police our trademarks and trade secrets; and
- the patents of others may have an adverse effect on our business, including if others obtain patents claiming subject matter similar to or improving that covered by our patents and patent applications.

Should any of these events occur, they could significantly harm our business, results of operations and prospects.

Our commercial success depends significantly on our ability to operate without infringing the patents and other proprietary rights of third parties. Claims by third parties that we infringe their proprietary rights may result in liability for damages or prevent or delay our developmental and commercialization efforts.

Our commercial success depends in part on avoiding infringement of the patents and proprietary rights of third parties. However, our research, development and commercialization activities may be subject to claims that we infringe or otherwise violate patents or other intellectual property rights owned or controlled by third parties. Other entities may have or obtain patents or proprietary rights that could limit our ability to make, use, sell, offer for sale or import our product candidates and products that may be approved in the future, or impair our competitive position. There is a substantial amount of litigation, both within and outside the United States, involving patent and other intellectual property rights in the biopharmaceutical industry, including patent infringement lawsuits, oppositions, reexaminations, IPR proceedings and PGR proceedings before the USPTO and/or foreign patent offices. Numerous third-party U.S. and foreign issued patents and pending patent applications exist in the fields in which we are developing product candidates. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates.

As the biopharmaceutical industry expands and more patents are issued, the risk increases that our product candidates may be subject to claims of infringement of the patent rights of third parties. We cannot provide any assurances that third-party patents do not exist which might be enforced against our current product candidates or future products, resulting in either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties. Because patent applications are maintained as confidential for a certain period of time, until the relevant application is published, we may be unaware of third-party patents that may be infringed by commercialization of any of our product candidates, and we cannot be certain that we were the first to file a patent application related to a product candidate or technology. Moreover, because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that our product candidates may infringe. In addition, identification of third-party patent rights that may be relevant to our technology is difficult because patent searching is imperfect due to differences in terminology among patents, incomplete databases and the difficulty in assessing the meaning of patent claims. It is also possible that patents owned by third parties of which we are aware, but which we do not believe are relevant to our product candidates and other proprietary technologies we may develop, could be found to be infringed by our product candidate. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. Any claims of patent infringement asserted by third parties would be time consuming and could:

- result in costly litigation that may cause negative publicity;
- divert the time and attention of our technical personnel and management;
- cause development delays;
- prevent us from commercializing any of our product candidates until the asserted patent expires or is held finally invalid or unenforceable or not infringed in a court of law;
- require us to develop non-infringing technology, which may not be possible on a cost-effective basis;
- subject us to significant liability to third parties; or
- require us to enter into royalty or licensing agreements, which may not be available on commercially reasonable terms, or at all, or which might be non-exclusive, which could result in our competitors gaining access to the same technology.

Although, to our knowledge, no third party has asserted a claim of patent infringement against us as of the date of this prospectus, others may hold proprietary rights that could prevent our product candidates from being marketed. Any patent-related legal action against us claiming damages and seeking to enjoin activities relating to our product candidates or processes could subject us to potential liability for damages, including treble damages if we were determined to willfully infringe, and require us to obtain a license to manufacture or develop our product candidates. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of management and employee resources from our business. We cannot predict whether we would prevail in any such actions or that any license required under any of these patents would be made available on commercially acceptable terms, if at all. Moreover, even if we or our future strategic partners were able to obtain a license, the rights may be nonexclusive, which could result in our competitors gaining access to the same intellectual property. In addition, we cannot be certain that we could redesign our product candidates or processes to avoid infringement, if necessary. Accordingly, an adverse determination in a judicial or administrative proceeding, or the failure to obtain necessary licenses, could prevent us from developing and commercializing our product candidates, which could harm our business, financial condition and operating results.

Parties making claims against us may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources or more mature and developed intellectual property portfolios, or both. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or administrative proceedings, there is a risk that some of our confidential information could be compromised by disclosure. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise additional funds or otherwise have a material adverse effect on our business, our ability to compete in the marketplace, results of operations, financial condition and prospects.

We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, which could be expensive, time-consuming and unsuccessful. Further, our in-licensed issued patents could be found invalid or unenforceable if challenged in court.

Competitors may infringe our patents or other intellectual property rights or the intellectual property rights of our licensors. To cease such infringement or unauthorized use, we and/or our licensors may be required to file infringement claims, which can be expensive and time-consuming. Further, our licensors may need to file infringement claims, and our licensors may elect not to file such claims. Our pending patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications. In addition, in a patent infringement proceeding, a court may decide that a patent we own or license is not valid, is unenforceable and/or is not infringed. If we or any of our licensors or potential future collaborators were to initiate legal proceedings against a third party to enforce a patent directed at one of our product candidates, the defendant could counterclaim that our patent is invalid and/or unenforceable in whole or in part. In patent litigation, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge include an alleged failure to meet any of several statutory requirements, including lack of novelty or written description, obviousness, written description, or non-enablement. Grounds for an unenforceability assertion could include an allegation that someone connected with prosecution of the patent intentionally withheld material information from the USPTO or made a misleading statement 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 such product candidate. There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent's claims narrowly or decide that we do not have the right to stop the other party from using the invention at issue on the grounds that our patent claims do not cover the invention, or decide that the other party's use of our patented technology falls under the safe harbor to patent infringement under 35 U.S.C. §271(e)(1). In addition, if the breadth or strength of protection provided by our patents and patent applications or those of our licensors is threatened, it could dissuade companies from collaborating with us to license, develop or commercialize current or future product candidates. Such a loss of patent protection would have a material adverse impact on our business. 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 this case, we could ultimately be forced to cease use of such trademarks.

Even if resolved in our favor, litigation or other legal proceedings relating to our intellectual property rights may cause us to incur significant expenses and could distract our technical and management personnel from their normal responsibilities. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to conduct such litigation or proceedings adequately. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could compromise our ability to compete in the marketplace.

Even if we establish infringement, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation or other legal proceedings relating to our intellectual property rights, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation or other proceedings.

Intellectual property litigation may lead to unfavorable publicity that harms our reputation and causes the market price of our common shares to decline.

During the course of any intellectual property litigation, there could be public announcements of the initiation of the litigation as well as results of hearings, rulings on motions, and other interim proceedings in the litigation. If securities analysts or investors regard these announcements as negative, the perceived value of our existing product candidates, programs or intellectual property could be diminished. Such announcements could also harm our reputation or the market for our future product candidates, which could have a material adverse effect on our business.

Derivation or interference proceedings may be necessary to determine priority of inventions, and an unfavorable outcome may require us to cease using the related technology or to attempt to license rights from the prevailing party.

Derivation or interference proceedings provoked by third parties or brought by us or our licensors, or declared by the USPTO or similar proceedings in foreign patent offices may be necessary to determine the priority of inventions with respect to, or correct the inventorship of, our or our licensors' patents or patent applications. An unfavorable outcome could result in a loss of our current patent rights and require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms. Our or our licensors' defense of such proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. In addition, the uncertainties associated with such proceedings could have a material adverse effect on our ability to raise the funds necessary to continue our clinical trials, continue our research programs, license necessary technology from third parties or enter into development or manufacturing partnerships that would help us bring our product candidates to market.

Patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.

In September 2011, the Leahy-Smith America Invents Act, or Leahy-Smith Act, was signed into law. The Leahy-Smith Act could increase uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted, redefine prior art, and provide more efficient and cost-effective avenues for competitors to challenge the validity of patents. In particular, under the Leahy-Smith Act, the United States transitioned in March 2013 to a "first inventor to file" system in which, assuming that other requirements of patentability are met, the first inventor to file a patent application will be entitled to the patent regardless of whether a third party was first to invent the claimed invention. A third party that files a patent application in the USPTO after March 2013 but before we file an application covering the same invention, could therefore be awarded a patent covering an invention of ours even if we had made the invention before it was made by such third party. This will require us to be cognizant going forward of the time from invention to filing of a patent application. Furthermore, our ability to obtain and maintain valid and enforceable patents depends on whether the differences between our technology and the prior art allow our technology to be patentable over the prior art. Since patent applications in the United States and most other countries are confidential for a period of time after filing or until issuance, we cannot be certain that we or our licensors were the first to either (i) file any patent application related to our product candidates and other proprietary technologies we may develop or (ii) invent any of the inventions claimed in our or our licensors' patents or patent applications. Even where we have a valid and enforceable patent, we may not be able to exclude others from practicing the claimed invention where the other party can show that they used the invention in commerce before our filing date or the other party benefits from a compulsory license.

The Leahy-Smith Act also includes a number of significant changes that affect the way patent applications will be prosecuted and also may affect patent litigation. These include allowing third-party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent by USPTO administered post-grant proceedings, including PGR, IPR, and derivation proceedings. An adverse determination in any such submission or proceeding could reduce the scope or enforceability of, or invalidate, our patent rights, which could adversely affect our competitive position.

Because of a lower evidentiary standard in USPTO proceedings compared to the evidentiary standard in United States federal courts necessary to invalidate a patent claim, a third party could potentially provide evidence in a USPTO proceeding sufficient for the USPTO to hold a claim invalid even though the same evidence would be insufficient to invalidate the claim if first presented in a district court action. Accordingly, a third party may attempt to use the USPTO procedures to invalidate our patent claims that would not have been invalidated if first challenged by the third party as a defendant in a district court action. Thus, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our or licensors' patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Changes in U.S. patent law, or laws in other countries, could diminish the value of patents in general, thereby impairing our ability to protect our product candidates.

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involves a high degree of technological and legal complexity. Therefore, obtaining and enforcing biopharmaceutical patents is costly, time-consuming and inherently uncertain. Changes in either the patent laws or in the interpretations of patent laws in the United States and other countries may diminish our ability to protect our inventions, obtain, maintain, and enforce our intellectual property rights, and, more generally, could affect the value of our intellectual property and may increase the uncertainties and costs surrounding the prosecution of patent applications and the enforcement or defense of issued patents. We cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents. In addition, Congress or other foreign legislative bodies may pass patent reform legislation that is unfavorable to us or narrows the scope of our owned and licensed patents.

For example, the U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our or our licensors' ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the U.S. federal courts, the USPTO, or similar authorities in foreign jurisdictions, the laws and regulations governing patents could change in unpredictable ways that would weaken our or our licensors' ability to obtain new patents or to enforce our existing patents and patents we might obtain in the future. We cannot predict how future decisions by Congress, the federal courts or the USPTO may impact the value of our patents.

We or our licensors may be subject to claims challenging the inventorship or ownership of our or our in-licensed patents and other intellectual property.

We may also be subject to claims that former employees, collaborators, or other third parties have an ownership interest in our in-licensed patents or other intellectual property as an inventor or co-inventor. The failure to name the proper inventors on a patent application can result in the patents issuing thereon being unenforceable. Inventorship disputes may arise from conflicting views regarding the contributions of different individuals named as inventors, the effects of foreign laws where foreign nationals are involved in the development of the subject matter of the patent, conflicting obligations of third parties involved in developing our product candidates or as a result of questions regarding co-ownership of potential joint inventions. For example, we may have inventorship disputes arise from conflicting obligations of consultants or others who are involved in developing our product candidates. Alternatively, or additionally, we may enter into agreements to clarify the scope of our rights in such intellectual property. Litigation may be necessary to defend against these and other claims challenging inventorship or ownership. If we or our licensors fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership or a right to use. Such an outcome could have a material adverse effect on our business. Even if we or our licensors are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or 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, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial condition, results of operations, and prospects.

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

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years after its first effective filing date. Various extensions may be available, but the term of a patent, and the protection it affords, is limited. Even if patents directed to our product candidates are obtained, once the patent term has expired, we may be open to competition from competitive products. Given the amount of time required for the development, testing and regulatory review of product candidates, patents directed to our product 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. In addition, although upon issuance in the United States a patent's life can be increased based on certain delays caused by the USPTO, this increase can be reduced or eliminated based on certain delays caused by the patent applicant during patent prosecution.

If we or our licensors do not obtain patent term extension for our product candidates, our business may be materially harmed.

Depending upon the timing, duration and specifics of FDA marketing approval, if any, of our product candidates, one or more of our U.S. patents may be eligible for limited patent term restoration under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Amendments. The Hatch- Waxman Amendments permit a patent restoration term of up to five years as compensation for patent term lost during product development and the FDA regulatory review process. A maximum of one patent may be extended per FDA-approved product as compensation for the patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval and only those claims covering such approved drug product, a method for using it or a method for manufacturing it may be extended. Patent term extension may also be available in certain foreign countries upon regulatory approval of our product candidates. However, we or our licensors may not be granted an extension because of, for example, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we or our licensors are unable to obtain patent term extension or restoration or the term of any such extension is less than we request, our competitors may obtain approval of competing products following our patent expiration, and our revenue could be reduced, possibly materially. Further, if this occurs, our competitors may take advantage of our investment in development and clinical trials by referencing our clinical and preclinical data and launch their product earlier than might otherwise be the case. If we do not have sufficient patent life to protect our products, our business and results of operations will be adversely affected.

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

Although we have in-licensed pending patent applications in the United States and certain other countries, filing, prosecuting and defending patents 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 foreign countries, particularly certain developing countries, do not protect intellectual property rights to the same extent as federal and state laws in the United States. Consequently, we may not be able to prevent third parties from practicing our in-licensed inventions in all countries outside the United States or from selling or importing products made using our in-licensed inventions in and into the United States or other jurisdictions. Competitors may use our in-licensed technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we or our licensors have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our product candidates, and our or our licensors patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of many foreign countries do not favor the enforcement of patents, trade secrets, and other intellectual property protection, which could make it difficult in those jurisdictions for us to stop the infringement or misappropriation of our or our licensors' patents or other intellectual property rights, or marketing of competing products in violation of our proprietary rights. Proceedings to enforce our or our licensors' patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our or our licensors' patents at risk of being invalidated, held unenforceable, or interpreted narrowly and our or our licensors' patent applications at risk of not issuing and could provoke third parties to assert claims against us. We or our licensors may not prevail in any lawsuits that we or our licensors initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Similarly, if our trade secrets are disclosed in a foreign jurisdiction, competitors worldwide could have access to our proprietary information and we may be without satisfactory recourse. Such disclosure could have a material adverse effect on our business. Accordingly, our or our licensors' 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.

In addition, certain countries, including China and India, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we and our licensors may have limited remedies if patents are infringed or if we or our licensors are compelled to grant a license to a third-party, which could materially diminish the value of those patents. In addition, many countries limit the enforceability of patents against government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of such patent. If we or our licensors are forced to grant a license to third parties with respect to any patents relevant to our business, our competitive position may be impaired, and our business, financial condition, results of operations and prospects may be adversely affected.

Because of the expense and uncertainty of litigation in certain foreign jurisdictions, we may conclude that even if a third-party is infringing our issued patents, any patents that may be issued as a result of our pending or future patent applications or other intellectual property rights, the risk-adjusted cost of bringing and enforcing such a claim or action, which typically last for years before they are concluded, may be too high or not in the best interest of our company or our stockholders, or it may be otherwise impractical or undesirable to enforce our intellectual property against some third parties. Our competitors or other third parties may be able to sustain the costs of complex patent litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. In such cases, we may decide that the monetary cost of such litigation and the diversion of the attention of our management and scientific personnel could outweigh any benefit we receive as a result of the proceedings and that the more prudent course of action is to simply monitor the situation or initiate or seek some other non-litigious action or solution. In addition, the uncertainties associated with litigation could compromise our ability to raise the funds necessary to continue our clinical trials, continue our internal research programs, in-license needed technology or other product candidates, or enter into development partnerships that would help us bring our product candidates to market.

Obtaining and maintaining our patent protection depends on compliance with various procedural, documentary, fee payment and other requirements imposed by regulations and governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be due to the USPTO and various foreign patent offices at various points over the lifetime of our patents and/or applications. We have systems in place to remind us to pay these fees, and we rely on third parties to pay these fees when due. Additionally, the USPTO and various foreign patent offices require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. We employ reputable law firms and other professionals to help us comply, and in many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with rules applicable to the particular jurisdiction. 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 such an event were to occur, it could have a material adverse effect on our business.

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

In addition to the protection afforded by other types of intellectual property, we rely on the protection of our trade secrets, including unpatented know-how, technology and other proprietary information to maintain our competitive position. Although we have taken steps to protect our trade secrets and unpatented know-how, including entering into confidentiality agreements with third parties (including, but not limited to, contractors, collaborators, and outside scientific advisors), and confidential information and inventions agreements with employees, consultants, licensors and advisors, we cannot provide any assurances that all such agreements have been duly executed, and any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. We require our employees to enter into written confidentiality agreements that assign to us any inventions, developments, creative works and useful ideas of any description that are conceived of, reduced to practice or developed in the course of their employment. In addition, we require our third-party contractors to enter into a written non-disclosure agreement that requires the third party to not disclose certain of our confidential information in any manner or for any purpose other than as necessary and/or appropriate in connection with their obligations for a defined period of time, subject to certain exclusions. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. We may need to share our proprietary information, including trade secrets, with our current and future business partners, collaborators, contractors and others located in countries at heightened risk of theft of trade secrets, including through direct intrusion by private parties or foreign actors, and those affiliated with or controlled by state actors.

Moreover, third parties may still obtain this information or may come upon this or similar information independently, and we would have no right to prevent them from using that technology or information to compete with us. If any of these events occurs or if we otherwise lose protection for our trade secrets, the value of this information may be greatly reduced and our competitive position would be harmed. If we or our licensors do not apply for patent protection prior to such publication or if we cannot otherwise maintain the confidentiality of our proprietary technology and other confidential information, then our ability to obtain patent protection or to protect our trade secret information may be jeopardized.

We may be subject to claims that we have wrongfully hired an employee from a competitor or that we or our employees have wrongfully used or disclosed alleged confidential information or trade secrets of their former employers.

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

As is common in the biopharmaceutical industry, in addition to our employees, we engage the services of consultants to assist us in the development of our product candidates. Many of these consultants, and many of our employees, were previously employed at, or may have previously provided or may be currently providing consulting services to, other biopharmaceutical companies including our competitors or potential competitors. We may become subject to claims that we, our employees, independent contractors, or consultants inadvertently or otherwise used or disclosed trade secrets or other information proprietary to their former employers or their former or current clients. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel, which could adversely affect our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to our management team and other employees.

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

Our current or future trademarks or trade names may be challenged, infringed, circumvented, or declared generic or descriptive or determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names or may be forced to stop using these names, which we need for name recognition by potential partners or customers in our markets of interest. During trademark registration proceedings, we may receive rejections of our applications by the USPTO or in other foreign jurisdictions. Although we would be given an opportunity to respond to those rejections, we may be unable to overcome such rejections. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively and our business may be adversely affected. We may license our trademarks and trade names to third parties, such as distributors. Though these license agreements may provide guidelines for how our trademarks and trade names may be used, a breach of these agreements or misuse of our trademarks and tradenames by our licensees may jeopardize our rights in or diminish the goodwill associated with our trademarks and trade names.

Moreover, any name we have proposed to use with product candidates in the United States may need FDA approval, regardless of whether we have registered it, or applied to register it, as a trademark. Similar requirements exist in Europe. The FDA typically conducts a review of proposed product names, including an evaluation of potential for confusion with other product names. If the FDA (or an equivalent administrative body in a foreign jurisdiction) objects to any of our proposed proprietary product names, we may be required to expend significant additional resources in an effort to identify a suitable substitute name that would qualify under applicable trademark laws, not infringe the existing rights of third parties and be acceptable to the FDA. Furthermore, in many countries, owning and maintaining a trademark registration may not provide an adequate defense against a subsequent infringement claim asserted by the owner of a senior trademark. At times, competitors or other third parties may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. 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 this case, we could ultimately be forced to cease use of such trademarks.

Risks Related to Employee Matters and Managing our Growth

If we are unable to establish sales or marketing capabilities or enter into agreements with third parties to sell or market our product candidates, we may not be able to successfully sell or market our product candidates that obtain regulatory approval.

We currently do not have and have never had a marketing or sales team. In order to commercialize any product candidates, if approved, we must build marketing, sales, distribution, managerial and other non-technical capabilities or make arrangements with third parties to perform these services for each of the territories in which we may have approval to sell or market our product candidates. We may not be successful in accomplishing these required tasks.

Establishing an internal sales or marketing team with technical expertise and supporting distribution capabilities to commercialize our product candidates will be expensive and time-consuming, and will require significant attention of our executive officers to manage. Any failure or delay in the development of our internal sales, marketing and distribution capabilities could adversely impact the commercialization of any of our product candidates that we obtain approval to market, if we do not have arrangements in place with third parties to provide such services on our behalf. Alternatively, if we choose to collaborate, either globally or on a territory-by-territory basis, with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems, we will be required to negotiate and enter into arrangements with such third parties relating to the proposed collaboration. If we are unable to enter into such arrangements when needed, on acceptable terms, or at all, we may not be able to successfully commercialize any of our product candidates that receive regulatory approval, or any such commercialization may experience delays or limitations. If we are unable to successfully commercialize our approved product candidates, either on our own or through collaborations with one or more third parties, our future product revenue will suffer and we may incur significant additional losses.

Our success is highly dependent on our ability to attract and retain highly skilled executive officers and employees.

To succeed, we must recruit, retain, manage and motivate qualified clinical, scientific, technical and management personnel, and we face significant competition for experienced personnel. We are highly dependent on the principal members of our management and scientific and medical staff. If we do not succeed in attracting and retaining qualified personnel, particularly at the management level, it could adversely affect our ability to execute our business plan and harm our operating results. In particular, the loss of one or more of our executive officers could be detrimental to us if we cannot recruit suitable replacements in a timely manner. The competition for qualified personnel in the biotechnology field is intense and as a result, we may be unable to continue to attract and retain qualified personnel necessary for the future success of our business. We could in the future have difficulty attracting experienced personnel to our company and may be required to expend significant financial resources in our employee recruitment and retention efforts.

Many of the other biotechnology companies that we compete against for qualified personnel have greater financial and other resources, different risk profiles and a longer history in the industry than we do. They also may provide more diverse opportunities and better prospects for career advancement. Some of these characteristics may be more appealing to high-quality candidates than what we have to offer. If we are unable to continue to attract and retain high-quality personnel, the rate and success at which we can discover, develop and commercialize our product candidates will be limited and the potential for successfully growing our business will be harmed.

In order to successfully implement our plans and strategies, we will need to grow the size of our organization, and we may experience difficulties in managing this growth.

As of September 30, 2023, we had eight full-time employees. In order to successfully implement our development and commercialization plans and strategies, we expect to need additional managerial, operational, sales, marketing, financial and other personnel. Future growth would impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining and motivating additional employees;
- managing our internal development efforts effectively, including the clinical, FDA, EMA and other comparable foreign regulatory agencies' review process of our product candidates and any other product candidate we develop, while complying with any contractual obligations to contractors and other third parties we may have; and
- improving our operational, financial and management controls, reporting systems and procedures.

Our future financial performance and our ability to successfully develop and, if approved, commercialize any of our current product candidates and any other product candidate we may develop will depend, in part, on our ability to effectively manage any future growth, and our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing these growth activities.

We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants to provide certain services, including key aspects of clinical development and manufacturing. We cannot assure you that the services of independent organizations, advisors and consultants will continue to be available to us on a timely basis when needed, or that we can find qualified replacements. In addition, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by third party service providers is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain marketing approval of any current or future product candidates or otherwise advance our business. We cannot assure you that we will be able to manage our existing third party service providers or find other competent outside contractors and consultants on economically reasonable terms, or at all.
If we are not able to effectively expand our organization by hiring new employees and/or engaging additional third party service providers, we may not be able to successfully implement the tasks necessary to further develop and commercialize our product candidates and any future product candidates and, accordingly, may not achieve our research, development and commercialization goals.

Risks Related to This Offering and Ownership of Our Common Stock

The direct listing process differs from an initial public offering underwritten on a firm-commitment basis.

This is not an underwritten initial public offering of common stock. This listing of our common stock on Nasdaq differs from an underwritten initial public offering in several significant ways, which include, but are not limited to, the following:

- There are no underwriters engaged on a firm-commitment basis. Consequently, prior to the opening of trading on Nasdaq, there will be no traditional book building process and no price at which underwriters initially sold shares to the public to help inform efficient and sufficient price discovery with respect to the opening trades on Nasdaq. Therefore, buy and sell orders submitted prior to and at the opening of trading of our common stock on Nasdaq will not have the benefit of being informed by a published price range or a price at which the underwriters initially sold shares to the public, as would be the case in an initial public offering underwritten on a firm-commitment basis. Moreover, there will be no underwriters engaged on a firm-commitment underwritten basis assuming risk in connection with the initial resale of shares of our common stock. In an initial public offering underwritten on a firm-commitment basis, the underwriters may engage in "covered" short sales in an amount of shares representing the underwriters' option to purchase additional shares. To close a covered short position, the underwriters purchase shares in the open market or exercise the underwriters' option to purchase additional shares. In determining the source of shares to close the covered short position, the underwriters typically consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the underwriters' option to purchase additional shares. Purchases in the open market to cover short positions, as well as other purchases underwriters may undertake for their own accounts, may have the effect of preventing a decline in the market price of shares. Given that there will be no underwriters' option to purchase additional shares and no underwriters engaging in stabilizing transactions, there could be greater volatility in the public price of our common stock during the period immediately following the listing. See also "*— Our shares of common stock have no prior public market. An active trading market may not develop or continue to be liquid and the market price of our shares of common stock may be volatile*."

- There is not a fixed number of shares of common stock available for sale. Therefore, there can be no assurance that any Registered Stockholders or other existing stockholders will sell any or all of their common stock and there may initially be a lack of supply of, or demand for, our common stock on Nasdaq. Alternatively, we may have a large number of Registered Stockholders or other existing stockholders who choose to sell their common stock in the near term resulting in an oversupply of our common stock, which could adversely impact the public price of our common stock once listed on Nasdaq and thereafter.

- None of our Registered Stockholders or other existing stockholders have entered into contractual lock-up agreements or other contractual restrictions on transfer. In a firm-commitment underwritten initial public offering, it is customary for an issuer's officers, directors, and most of its other stockholders to enter into a 180-day contractual lock-up arrangement with the underwriters to help promote orderly trading immediately after such initial public offering. Consequently, any of our stockholders, including our directors and officers who own our common stock and other significant stockholders, may sell any or all of their common stock at any time (subject to any restrictions under applicable law), including immediately upon listing. If such sales were to occur in a significant volume in a short period of time following our listing, it may result in an oversupply of our common stock in the market, which could adversely impact the public price of our common stock.

- We will not conduct a traditional "roadshow" with underwriters prior to the opening of trading on Nasdaq. Instead, we intend to host an investor day, as well as engage in certain other investor education meetings. In advance of the investor day, we will announce the date for such day over financial news outlets in a manner consistent with typical corporate outreach to investors. We will prepare an electronic presentation for this investor day, which will have content similar to a traditional roadshow presentation, and make one version of the presentation publicly available, without restriction, on a website. There can be no guarantees that the investor day and other investor education meetings will have the same impact on investor education as a traditional "roadshow" conducted in connection with a firm-commitment underwritten initial public offering. As a result, there may not be efficient price discovery with respect to our common stock or sufficient demand among investors immediately after our listing, which could result in a more volatile public price of our common stock.

Such differences from a firm-commitment underwritten initial public offering could result in a volatile trading price for our common stock and uncertain trading volume, which may adversely affect your ability to sell any common stock that you may purchase.

Our common stock currently has no public market. An active trading market may not develop or continue to be liquid and the market price of shares of our common stock may be volatile.

We expect our common stock to be listed and traded on Nasdaq. Prior to the listing on Nasdaq, there has not been a public market for any of our securities, and an active market for our common stock may not develop or be sustained after the listing, which could depress the market price of shares of our common stock and could affect the ability of our stockholders to sell our common stock. In the absence of an active public trading market, investors may not be able to liquidate their investments in our common stock. An inactive market may also impair our ability to raise capital by selling shares of our common stock, our ability to motivate our employees through equity incentive awards and our ability to acquire other companies, products or technologies by using shares of our common stock as consideration.

In addition, we cannot predict the prices at which our common stock may trade on Nasdaq following the listing of our common stock, and the market price of our common stock may fluctuate significantly in response to various factors, some of which are beyond our control. In particular, as this listing is taking place through a novel process that is not a firm-commitment underwritten initial public offering, there will be no traditional book building process and no price at which traditional underwriters initially sold shares to the public to help inform efficient price discovery with respect to the opening trades on Nasdaq. On the day that our shares of common stock are initially listed on Nasdaq, Nasdaq will begin accepting, but not executing, pre-opening buy and sell orders and will begin to continuously generate the indicative Current Reference Price on the basis of such accepted orders. The Current Reference Price is calculated each second and, during a 10-minute "Display Only" period, is disseminated, along with other indicative imbalance information, to market participants by Nasdaq on its NOII and BookViewer tools. Following the "Display Only" period, a "Pre-Launch" period begins, during which the Advisor, in its capacity as our financial advisor, must notify Nasdaq that our shares are "ready to trade." Once the Advisor has notified Nasdaq that our shares of common stock are ready to trade, Nasdaq will confirm the Current Reference Price for our shares of common stock, in accordance with Nasdaq rules. If the Advisor then approves proceeding at the Current Reference Price, the applicable orders that have been entered will be executed at such price and regular trading of shares of our common stock on Nasdaq will commence, subject to Nasdaq conducting validation checks in accordance with Nasdaq rules. The Advisor will determine when our shares of common stock are ready to trade and approve proceeding at the Current Reference Price primarily based on considerations of volume, timing and price. In particular, the Advisor will determine, based primarily on pre-opening buy and sell orders, when a reasonable amount of volume will cross on the opening trade such that sufficient price discovery has been made to open trading at the Current Reference Price. If the Advisor does not approve proceeding at the Current Reference Price (for example, due to the absence of adequate preopening buy and sell interest), the Advisor will request that Nasdaq delay the open until such a time that sufficient price discovery has been made to ensure a reasonable amount of volume crosses on the opening trade. For more information, see "*Plan of Distribution*."

Additionally, prior to the opening trade, there will not be a price at which underwriters initially sold shares of common stock to the public as there would be in a firm-commitment underwritten initial public offering. The absence of a predetermined initial public offering price could impact the range of buy and sell orders collected by Nasdaq from various broker-dealers. Consequently, upon listing on Nasdaq, the public price of our common stock may be more volatile than in a firm-commitment underwritten initial public offering and could decline significantly and rapidly.

Furthermore, because of our novel listing process on Nasdaq, Nasdaq's rules for ensuring compliance with its initial listing standards, such as those requiring a valuation or other compelling evidence of value, are untested. In the absence of a prior active public trading market for our common stock, if the price of our common stock or our market capitalization falls below those required by Nasdaq's eligibility standards, we may not be able to satisfy the ongoing listing criteria and may be required to delist.

In addition, because of our novel listing process, individual investors, retail or otherwise, may have greater influence in setting the opening public price and subsequent public prices of our common stock on Nasdaq and may participate more in our initial trading than is typical for a firm-commitment underwritten initial public offering. These factors could result in a public price of our common stock that is higher than other investors (such as institutional investors) are willing to pay, which could cause volatility in the trading price of our common stock and an unsustainable trading price if the price of our common stock significantly rises upon listing and institutional investors believe our common stock is worth less than retail investors, in which case the price of our common stock may decline over time. Further, if the public price of our common stock is above the level that investors determine is reasonable for our common stock, some investors may attempt to short our common stock after trading begins, which would create additional downward pressure on the public price of our common stock. To the extent that there is a lack of consumer awareness among retail investors, such a lack of consumer awareness could reduce the value of our common stock and cause volatility in the trading price of our common stock.

The public price of our common stock following the listing also could be subject to wide fluctuations in response to the risk factors described in this prospectus and others beyond our control, including:

- changes in the industries in which we operate;
- variations in our operating performance and the performance of our competitors in general;
- actual or anticipated fluctuations in our quarterly or annual operating results;
- publication of research reports by securities analysts about us or our competitors or our industry;
- the public's reaction to our press releases, our other public announcements and our filings with the SEC;
- our failure or the failure of our competitors to meet analysts' projections or guidance that we or our competitors may give to the market;
- additions and departures of key personnel;
- changes in laws and regulations affecting our business;
- commencement of, or involvement in, litigation involving us;
- changes in our capital structure, such as future issuances of securities or the incurrence of additional debt;
- the volume of shares of our common stock available for public sale; and
- general economic and political conditions such as recessions, interest rates, fuel prices, foreign currency fluctuations, international tariffs, social, political and economic risks and acts of war or terrorism.

In addition, securities exchanges have experienced price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. Stock prices of many companies have fluctuated in a manner often unrelated to the operating performance of those companies. These fluctuations may be even more pronounced in the trading market for our common stock shortly following the listing of our common stock on Nasdaq as a result of the supply and demand forces described above. In the past, stockholders have instituted securities class action litigation following periods of market volatility. If we were to become involved in securities litigation, it could subject us to substantial costs, divert resources and the attention of management from our business and harm our business, results of operations and financial condition.

Future sales of common stock by our Registered Stockholders and other existing stockholders could cause our share price to decline.

We currently expect our common stock to be listed and traded on Nasdaq. Prior to listing on Nasdaq, there has been no public market for our common stock and there has not been a sustained history of trading in our common stock in "over-the-counter" markets. While our common stock may be sold after our listing on Nasdaq by the Registered Stockholders pursuant to this prospectus or by our other existing stockholders in accordance with Rule 144 under the Securities Act, unlike a firm-commitment underwritten initial public offering, there can be no assurance that any Registered Stockholders or other existing stockholders will sell any of their shares of common stock and there may initially be a lack of supply of, or demand for, common stock on Nasdaq. As described herein, certain shares of our common stock outstanding as of the date hereof will be registered under this registration statement. There can be no assurance that the Registered Stockholders and other existing stockholders will not sell all of their shares of common stock, resulting in an oversupply of our common stock on Nasdaq. In the case of a lack of supply of our common stock, the trading price of our common stock may rise to an unsustainable level. Further, institutional investors may be discouraged from purchasing our common stock if they are unable to purchase a block of our common stock in the open market due to a potential unwillingness of our existing stockholders to sell a sufficient amount of common stock at the price offered by such institutional investors and the greater influence individual investors have in setting the trading price. If institutional investors are unable to purchase our common stock, the market for our common stock may be more volatile without the influence of long-term institutional investors holding significant amounts of our common stock. In the case of a lack of market demand for our common stock, the trading price of our common stock could decline significantly and rapidly after our listing. Therefore, an active, liquid and orderly trading market for our common stock may not initially develop or be sustained, which could significantly depress the public price of our common stock and/or result in significant volatility, which could affect your ability to sell your shares of common stock.

Upon the Direct Listing, we will have 2,500 shares of Series C Preferred Stock with super voting rights.

Our capital stock as of the date hereof consists of voting common stock (which we sometimes refer to herein as "common stock"), non-voting common stock, Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock. Our board of directors and stockholders have each approved the creation and issuance of an aggregate of 2,500 (after giving effect to the Reverse Stock Split) Series C Preferred Stock, all of which Series C Preferred Stock will be issued to Pete O'Heeron, our founder and Chief Executive Officer, such that, prior to the Direct Listing, our capital stock will consist of common stock, non-voting common stock, Series B Preferred, Series B-1 Preferred Stock and Series C Preferred Stock.

In connection with the Direct Listing, (i) all of our then outstanding Series A Preferred Stock, all of which are held by FibroGenesis, will be automatically canceled without the payment of additional consideration by or to the holder thereof, (ii) all of our then outstanding non-voting common stock will automatically convert, without the payment of additional consideration by or to the holders thereof, into common stock, on a one-for-one basis, (iii) all of our then outstanding Series B Preferred Stock and all of our then outstanding Series B-1 Preferred Stock will automatically convert, without the payment of additional consideration by or to the holders thereof, into common stock, on a one-for-one basis and (iv) all of our then outstanding Series C Preferred Stock will remain Series C Preferred Stock, such that, immediately after the Direct Listing, our issued and outstanding capital stock will consist of common stock and Series C Preferred Stock.

The Series C Preferred Stock (i) have no dividend rights, (ii) convert into common stock upon any transfer from the initial holder, (iii) have a liquidation preference of $18.00 per share (subject to appropriate adjustment in the event of any stock split, combination, or other similar recapitalization) upon our liquidation, dissolution or winding up and (iv) upon the Direct Listing, will be entitled to 13,000 votes for each share of Series C Preferred Stock (prior to the Direct Listing, the Series C Preferred will have no right to vote on any matter except as required by Delaware law, and in such required case, will have one vote per share of Series C Preferred Stock).

The Series C Preferred Stock will be subject to an irrevocable proxy issued by Pete O'Heeron, the holder of all of the Series C Preferred Stock, in favor and for the benefit of, our board of directors, granting our board of directors the irrevocable proxy, for as long as the Series C Preferred Stock remain outstanding, to vote all of the Series C Preferred Stock on all matters on which the Series C Preferred Stock are entitled to vote, in any manner that our board of directors may determine in its sole and absolute discretion; provided, however, that such irrevocable proxy shall not, without the written consent of Pete O'Heeron, permit our board of directors to vote the Series Preferred Stock with respect to any proposal to amend, delete or waive any rights of Pete O'Heeron with respect to the Series C Preferred Stock as set forth in our amended and restated certificate of incorporation. In light of the superior voting rights associated with the Series C Preferred Stock, the irrevocable proxy is intended to ensure that such superior voting rights are utilized in our best interest and to avoid or mitigate conflicts that may arise in the future for Pete O'Heeron as an individual stockholder employee.

See *"Description of Capital Stock—Series C Preferred Stock"* for additional information regarding our Series C Preferred Stock.

In addition to the dilutive effect on the voting power and value of our common stock, the foregoing structure of our capital stock may render our common stock ineligible for inclusion in certain securities market indices, and thus adversely affect the price and liquidity of, and public sentiment regarding, our common stock or other securities. The existence of, and voting rights associated with, our Series C Preferred Stock, either alone or in conjunction with certain of the other provisions of our amended and restated certificate of incorporation, such as the requirement to have a staggered board, could also have the effect of delaying, deterring or preventing a change in our control or make the removal of our management more difficult.

We will be a "controlled company" within the meaning of the Nasdaq Stock Market Rules upon the Direct Listing because our insiders will beneficially own more than 50% of the voting power of our outstanding voting securities.

Upon completion of this offering, our founder and Chief Executive Officer, Pete O'Heeron, will collectively beneficially own approximately 59% of the voting power of our outstanding voting securities and we will be a "controlled company" within the meaning of the listing rules of The Nasdaq Stock Market LLC. We may rely on certain exemptions from corporate governance rules, including an exemption from the rule that a majority of our board of directors must be independent directors. Although we currently do not intend to rely on the "controlled company" exemption under the Nasdaq listing rules, we could elect to rely on this exemption in the future. In the event that we elected to rely on the "controlled company" exemption, a majority of the members of our board of directors might not be independent directors, and our nominating and corporate governance and compensation committees might not consist entirely of independent directors. Our status as a controlled company could cause our shares of common stock to be less attractive to certain investors or otherwise harm our trading price. As a result, you would not have the same protection afforded to shareholders of companies that are subject to these corporate governance requirements.

You may be diluted by future issuances of preferred stock or additional common stock in connection with our incentive plans, acquisitions or otherwise; future sales of such shares in the public market, or the expectations that such sales may occur, could lower our stock price.

Prior to the effectiveness of the registration statement of which this prospectus forms a part, we will adopt an amended and restated certificate of incorporation which will authorize us to issue shares of common stock and options, rights, warrants and appreciation rights relating to our common stock for the consideration and on the terms and conditions established by our board of directors in its sole discretion. We could issue a significant number of shares of common stock in the future in connection with investments or acquisitions. Any of these issuances could dilute our existing stockholders, and such dilution could be significant. Moreover, such dilution could have a material adverse effect on the market price for the shares of our common stock.

The future issuance of shares of preferred stock with voting rights may adversely affect the voting power of the holders of shares of our common stock, either by diluting the voting power of our common stock if the preferred stock votes together with the common stock as a single class, or by giving the holders of any such preferred stock the right to block an action on which they have a separate class vote, even if the action were approved by the holders of our shares of our common stock.

The future issuance of shares of preferred stock with dividend or conversion rights, liquidation preferences or other economic terms favorable to the holders of preferred stock could adversely affect the market price for our common stock by making an investment in the common stock less attractive. For example, investors in the common stock may not wish to purchase common stock at a price above the conversion price of a series of convertible preferred stock because the holders of the preferred stock would effectively be entitled to purchase common stock at the lower conversion price, causing economic dilution to the holders of common stock.

Because we have no current plans to pay cash dividends on our common stock, you may not receive any return on investment unless you sell your common stock for a price greater than that which you paid for it.

We currently intend to retain all available funds and any future earnings to fund the development, commercialization and growth of our business, and therefore we do not anticipate declaring or paying any cash dividends on our common stock in the foreseeable future. Any future determination to declare dividends will be made at the discretion of our board of directors and will depend on our financial condition, operating results, capital requirements, general business conditions and other factors that our board of directors may deem relevant. Our future ability to pay cash dividends on our common stock may also be limited by the terms of any future debt securities or credit facility**.** As a result, capital appreciation, if any, of the common stock you purchase in this offering will be your sole source of gain for the foreseeable future.

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

We are an "emerging growth company," as defined in the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of certain exemptions and relief from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including (i) not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, (ii) having the option of delaying the adoption of certain new or revised financial accounting standards, (iii) reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements and (iv) exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved. We may take advantage of these exemptions until such time that we are no longer an emerging growth company. Accordingly, the information contained herein may be different than the information you receive from other public companies in which you hold stock. Further, pursuant to Section 107 of the JOBS Act, we have elected to take advantage of the extended transition period for complying with new or revised accounting standards until those standards would otherwise apply to private companies. As a result, our operating results and financial statements may not be comparable to the operating results and financial statements of other companies who have adopted the new or revised accounting standards.

We will remain an emerging growth company until the earliest of (i) December 31, 2028, (ii) the last day of the fiscal year in which we have total annual gross revenue of at least $1.235 billion, (iii) the last day of the fiscal year in which we are deemed to be a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act, which would occur if the market value of our common stock held by non-affiliates was $700.0 million or more as of the last business day of the second fiscal quarter of such year or (iv) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period.

We are also a "smaller reporting company" as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies until the fiscal year following the determination that our voting and non-voting common stock held by non-affiliates is $250 million or more measured on the last business day of our second fiscal quarter, or our annual revenues are less than $100 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is $700 million or more measured on the last business day of our second fiscal quarter.

It is possible that some investors will find our common stock less attractive as a result of the foregoing, which may result in a less active trading market for our common stock and higher volatility in our stock price.

Our management and principal stockholders own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

As of , 2023, our executive officers, directors and five percent or greater stockholders and their respective affiliates, beneficially own, in the aggregate, approximately % of our outstanding common stock on an as converted basis. To the extent that the same group continue to own a significant percentage of our common stock following this offering, these stockholders, if they act together, will be able to control the management and affairs of our company and most matters requiring stockholder approval, including the election of directors, amendments of our organizational documents and approval of any merger, sale of substantially all our assets or other significant corporate transactions. This concentration of ownership may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you or other stockholders may feel are in your or their best interest as one of our stockholders.

Provisions of our amended and restated certificate of incorporation and bylaws, in each case, which will become effective in connection with the effectiveness of the registration statement, of which this prospectus forms a part, may delay or prevent a take-over that may not be in the best interests of our stockholders.

Provisions of our amended and restated certificate of incorporation and bylaws, in each case, which will become effective in connection with the effectiveness of the registration statement, of which this prospectus forms a part, may be deemed to have anti-takeover effects, which include, among others, (i) the existence of our Series C Preferred Stock entitled to 13,000 votes per share of Series C Preferred Stock, as more particularly described elsewhere in this prospectus, (ii) a classified board of directors serving staggered three-year terms, (iii) who can fill vacancies of our board of directors, (iv) supermajority voting thresholds for the removal of members of our board, and (v) when and by whom special meetings of our stockholders may be called, and may delay, defer or prevent a takeover attempt.

In addition, our amended and restated certificate of incorporation will authorize the issuance of shares of preferred stock which will have such rights and preferences determined from time to time by our board of directors. Following the adoption of the amended and restated certificate of incorporation, our board of directors may, without stockholder approval (except as may be required under Nasdaq rules), issue additional preferred shares with dividends, liquidation, conversion, voting or other rights that could adversely affect the voting power or other rights of the holders of our common stock. Further, our amended and restated certificate of incorporation will authorize the issuance of "blank check" preferred stock that our board of directors could use to implement a stockholder rights plan (also known as a "poison pill").

Our amended and restated certificate of incorporation, in each case, which will become effective in connection with the effectiveness of the registration statement, of which this prospectus forms a part, will provide for an exclusive forum in the Court of Chancery of the State of Delaware for certain disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation, in each case, which will become effective in connection with the effectiveness of the registration statement, of which this prospectus forms a part, will provide that, unless we consent in writing to the selection of an alternative forum, (i) the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware) shall, to the fullest extent permitted by law, be the sole and exclusive forum for (a) any derivative action or proceeding brought on our behalf, (b) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (c) any action arising pursuant to any provision of the General Corporation Law of the State of Delaware, or the DGCL, our certificate of incorporation or our bylaws or (d) any action asserting a claim governed by the internal affairs doctrine and (ii) to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause or causes of action arising under the Securities Act, including all causes of action asserted against any defendant to such complaint. Pursuant to our planned amended and restated certificate of incorporation, any person or entity purchasing or otherwise acquiring or holding any interest in shares of our common stock will be deemed to have had notice of and consented to the forum selection clause in our planned amended and restated certificate of incorporation described in this paragraph.

The foregoing provision would not preclude stockholders that assert claims under the Exchange Act from bringing such claims in federal court, to the extent that the Exchange Act confers exclusive federal jurisdiction over such claims, subject to applicable law.

We believe our choice of forum provision may benefit us by providing increased consistency in the application of Delaware law by chancellors and judges particularly experienced in resolving corporate disputes, efficient administration of cases on a more expedited schedule relative to other forums and protection against the burdens of multi-forum litigation. However, our choice of forum provision may impose additional litigation costs on stockholders in pursuing claims and may limit a stockholder's ability to bring a claim in a judicial forum that it believes to be favorable for disputes with us or any of our directors, officers or other employees, which may discourage lawsuits with respect to such claims. In addition, while the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the choice of forum provision, and there can be no assurance that such provision will be enforced by a court in those other jurisdictions. If a court were to find the choice of forum provision in our certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

General Risks

Reports published by analysts, including projections in those reports that differ from our actual results, could adversely affect the price and trading volume of our common stock.

Securities research analysts may establish and publish their own periodic projections for our Company. These projections may vary widely and may not accurately predict the results we actually achieve. The price of our common stock may decline if our actual results do not match the projections of these securities research analysts. Similarly, if one or more of the analysts who write reports on us downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price could decline. If one or more of these analysts ceases coverage of us or fails to publish reports on us regularly, our stock price or trading volume could decline.

Our internal computer systems, or those of any of our CROs, manufacturers, other contractors, consultants, collaborators or potential future collaborators, may fail or suffer security or data privacy breaches or other unauthorized or improper access to, use of, or destruction of our proprietary or confidential data, employee data or personal data, which could result in additional costs, loss of revenue, significant liabilities, harm to our brand and material disruption of our operations.

Despite the implementation of security measures, our internal computer systems and those of our current and any future CROs and other contractors, consultants, collaborators and third-party service providers, are vulnerable to damage from computer viruses, cybersecurity threats, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failure. Because the techniques used to obtain unauthorized access to, or to sabotage, systems change frequently and often are not recognized until launched against a target, we may be unable to anticipate these techniques or implement adequate preventative measures. We may also experience security breaches that may remain undetected for an extended period. If such an event were to occur and cause interruptions in our operations or result in the unauthorized acquisition of or access to personally identifiable information or individually identifiable health information (violating certain privacy laws such as HIPAA and GDPR), it could result in a material disruption of our drug discovery and development programs and our business operations, whether due to a loss of our trade secrets or other similar disruptions. Some of the federal, state and foreign government requirements include obligations of companies to notify individuals of security breaches involving particular personally identifiable information, which could result from breaches experienced by us or by our vendors, contractors or organizations with which we have formed strategic relationships. Notifications and follow-up actions related to a security breach could impact our reputation, cause us to incur significant costs, including legal expenses and remediation costs. For example, the loss of clinical trial data from completed or future clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the lost data. We also rely on third parties for certain portions of our manufacturing process, and similar events relating to their computer systems could also have a material adverse effect on our business. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data, or inappropriate disclosure of confidential or proprietary information, we could be exposed to litigation and governmental investigations, the further development and commercialization of our product candidates could be delayed, and we could be subject to significant fines or penalties for any noncompliance with certain state, federal and/or international privacy and security laws.

Our insurance policies may not be adequate to compensate us for the potential losses arising from any such disruption, failure or security breach. In addition, such insurance may not be available to us in the future on economically reasonable terms, or at all. Further, our insurance may not cover all claims made against us and could have high deductibles in any event, and defending a suit, regardless of its merit, could be costly and divert management attention.

Our operations are vulnerable to interruption by fire, severe weather conditions, power loss, telecommunications failure, terrorist activity and other events beyond our control, which could harm our business.

Our facility is located in a region which experiences severe weather from time to time. We have not undertaken a systematic analysis of the potential consequences to our business and financial results from a major tornado, flood, fire, earthquake, power loss, terrorist activity or other disasters and do not have a recovery plan for such disasters. In addition, we do not carry sufficient insurance to compensate us for actual losses from interruption of our business that may occur, and any losses or damages incurred by us could harm our business. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that can involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, business strategy, prospective products, product approvals, research and development costs, future revenue, timing and likelihood of success, plans and objectives of management for future operations, future results of anticipated products and prospects, plans and objectives of management are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as "anticipate," "believe," "contemplate," "continue," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "will," or "would" or the negative of these terms or other similar expressions, although not all forward-looking statements contain these words. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

- the timing, progress and results of preclinical studies and clinical trials for our current and future product candidates, including statements regarding the timing of initiation and completion of studies or trials and related preparatory work, the period during which the results of the trials will become available and our research and development programs;
- the timing, scope or likelihood of regulatory submissions, filings, and approvals, including final regulatory approval of our product candidates;
- our ability to develop and advance product candidates into, and successfully complete, clinical trials;
- our expectations regarding the size of the patient populations for our product candidates, if approved for commercial use;
- the implementation of our business model and our strategic plans for our business, product candidates and technology;
- our commercialization, marketing and manufacturing capabilities and strategy;
- the pricing and reimbursement of our product candidates, if approved;
- the rate and degree of market acceptance and clinical utility of our product candidates, in particular, and cell therapy, in general;
- our ability to establish or maintain collaborations or strategic relationships or obtain additional funding;
- our competitive position;
- the scope of protection we and/or our licensors are able to establish and maintain for intellectual property rights covering our product candidates;
- developments and projections relating to our competitors and our industry;
- our estimates regarding expenses, future revenue, capital requirements and needs for additional financing;
- the period over which we estimate our existing cash and cash equivalents will be sufficient to fund our future operating expenses and capital expenditure requirements; and
- the impact of laws and regulations.

We have based these forward-looking statements largely on our current expectations and projections about our business, the industry in which we operate and financial trends that we believe may affect our business, financial condition, results of operations and prospects, and these forward-looking statements are not guarantees of future performance or development. These forward-looking statements speak only as of the date of this prospectus and are subject to a number of risks, uncertainties and assumptions described in the section titled "*Risk Factors*" and elsewhere in this prospectus. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein until after we distribute this prospectus, whether as a result of any new information, future events or otherwise.

In addition, statements that "we believe" and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and you are cautioned not to unduly rely upon these statements.

MARKET AND INDUSTRY DATA

This prospectus includes estimates regarding market and industry data. Unless otherwise indicated, information concerning our industry and the markets in which we operate, including our general expectations, market position, market opportunity, and market size, are based on our management's knowledge and experience in the markets in which we operate, together with currently available information obtained from various sources, including publicly available information, industry reports and publications, surveys, our customers, trade and business organizations, and other contacts in the markets in which we operate. Certain information is based on management estimates, which have been derived from third-party sources, as well as data from our internal research.

In presenting this information, we have made certain assumptions that we believe to be reasonable based on such data and other similar sources and on our knowledge of, and our experience to date in, the markets in which we operate. While we believe the estimated market and industry data included in this prospectus is generally reliable, such information is inherently uncertain and imprecise. Market and industry data is subject to change and may be limited by the availability of raw data, the voluntary nature of the data gathering process, and other limitations inherent in any statistical survey of such data. In addition, projections, assumptions, and estimates of the future performance of the markets in which we operate are necessarily subject to uncertainty and risk due to a variety of factors, including those described in "*Risk Factors*" and "*Cautionary Note Regarding Forward-Looking Statements*." These and other factors could cause results to differ materially from those expressed in the estimates made by third parties and by us. Accordingly, you are cautioned not to place undue reliance on such market and industry data or any other such estimates.

The source of certain statistical data, estimates, and forecasts contained in this prospectus are the following independent industry publications or reports:

- **"Degenerative Disc Disease Therapeutics Global Market Analysis, Insights and Forecast, 2022-2029"** Fortune Business Insights;
- **"Global Regenerative Medicine Market 2022-2029"** Fortune Business Insights;
- **"Global Multiple Sclerosis Drugs Market 2022-2029"** Fortune Business Insights; and
- **"Global Wound Care Market 2022-2029"** Fortune Business Insights.

The content of the above sources, except to the extent specifically set forth in this prospectus, does not constitute a portion of this prospectus and is not incorporated herein.

TRADEMARKS, SERVICE MARKS AND TRADENAMES

We own or otherwise have rights to the trademarks, including those mentioned in this prospectus, used in conjunction with the operation of our business. This prospectus includes our own trademarks, which are protected under applicable intellectual property laws, as well as trademarks, service marks and tradenames of other entities, which are the property of their respective owners. Solely for convenience, trademarks, trade names and service marks referred to in this prospectus may appear without the ®, TM or SM symbols, but such references are not intended to indicate, in any way, that the applicable licensor will not assert, to the fullest extent under applicable law, its rights to these trademarks, service marks and tradenames. We do not intend our use or display of other entities' trademarks, service marks or tradenames to imply a relationship with, or endorsement or sponsorship of us by, any other entities.

USE OF PROCEEDS

The Registered Stockholders may, or may not, elect to sell shares of our common stock covered by this prospectus. To the extent any Registered Stockholder chooses to sell shares of our common stock covered by this prospectus, we will not receive any proceeds from any such sales of our common stock. See "*Principal and Registered Stockholders.*"

DIVIDEND POLICY

We have never declared or paid cash dividends on our common stock. We currently intend to retain all available funds and any future earnings to fund the development, commercialization and growth of our business, and therefore we do not anticipate declaring or paying any cash dividends on our common stock in the foreseeable future. Any future determination as to the declaration and payment of dividends, if any, will be at the discretion of our board of directors. Any such determination will also depend upon our business prospects, operating results, financial condition, capital requirements, general business conditions and other factors that our board of directors may deem relevant. Our future ability to pay cash dividends on our common stock may also be limited by the terms of any future debt securities or credit facility**.**

CAPITALIZATION

The following table sets forth our cash and cash equivalents and capitalization as of June 30, 2023, as follows.

- on an actual basis (after giving effect to the Reverse Stock Split and the Capital Stock Adjustments);
- on a pro forma basis to give effect to (i) the automatic elimination of our Series A Preferred Stock for no consideration in connection with the Direct Listing, (ii) the automatic conversion, without any consideration, of all outstanding shares of our convertible preferred stock (being our Series B Preferred Stock and our Series B-1 Preferred Stock) and all outstanding shares of our non-voting common stock, in each case, on a one-for-one basis, into an aggregate of 32,416,175 shares of our common stock (after giving effect to the Reverse Stock Split), which was effective on October 31, 2023, (iii) the creation and issuance of 2,500 shares of our Series C Preferred Stock (after giving effect to the Reverse Stock Split), which will occur prior to the effectiveness of the registration statement of which this prospectus forms a part, and (iv) the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws, each of which will occur in connection with the effectiveness of the registration statement of which this prospectus forms a part.

The share numbers in the table below have been adjusted to reflect the Reverse Stock Splits and the Capital Stock Adjustments.

This table should be read in conjunction with, and is qualified in its entirety by reference to, our financial statements and related notes appearing elsewhere in this prospectus.

	As of June 30, 2023	
	Actual	Pro Forma
	(unaudited) (in thousands, except for share and per share amounts)	
Cash and cash equivalents	$ 11,378	$ 11,378
Stockholders' equity/(deficit):		
Preferred Stock, $0.00001 par value per share; 20,000,000 total shares authorized, actual and pro forma; 8,750,000 Series A Preferred shares authorized, issued and outstanding, actual; no Series A Preferred shares authorized, issued and outstanding, pro forma	—	—
Preferred Stock, $0.00001 par value per share; 20,000,000 total shares authorized, actual and pro forma; 5,000,000 Series B Preferred shares authorized, actual; 4,171,445 Series B Preferred shares issued and outstanding, actual; no Series B Preferred shares authorized, issued and outstanding, pro forma	—	—
Preferred Stock, $0.00001 par value per share; 20,000,000 total shares authorized, actual and pro forma; 5,000,000 Series B-1 Preferred shares authorized, actual; 13,888 Series B-1 Preferred shares issued and outstanding, actual; no Series B-1 Preferred shares authorized, issued and outstanding, pro forma	—	—
Preferred Stock, $0.00001 par value per share; 20,000,000 total shares authorized, actual and pro forma; no Series C Preferred shares authorized, issued and outstanding, actual; 2,500 Series C Preferred shares authorized, issued and outstanding, pro forma	—	—
Non-voting Common stock, $0.00001 par value per share; 30,000,000 shares authorized and 28,230,842 shares issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma	1	—
Voting Common Stock, $0.00001 par value per share; 100,000,000 shares authorized, actual and pro forma; no shares issued or outstanding, actual; 32,416,175 shares issued and outstanding, pro forma	—	1
Additional paid-in capital	23,800	23,800
Accumulated deficit	(12,448)	(12,448)
Total stockholders' equity	$ 11,353	$ 11,353
Total capitalization	$ 11,353	$ 11,353

The number of shares of our voting common stock reflected in our actual and pro forma information set forth in the table above excludes:

- 3,791,000 shares of common stock issuable upon exercise of stock options outstanding under our 2022 Stock Plan (as defined herein) as of June 30, 2023, with a weighted-average exercise price of $2.36 per share;
- 8,709,000 shares of common stock reserved for issuance under our 2022 Stock Plan;
- 61,034 shares of Series B-1 Preferred Stock issued after June 30, 2023, which upon Direct Listing will automatically convert to shares of common stock on a one-for-one basis;
- 8,890 shares of common stock underlying warrants to be issued in connection with the issuance of certain shares of the Series B-1 Preferred Stock; and
- Shares of common stock underlying warrants to purchase common stock that will be issued to certain investors upon the Direct Listing pursuant to the Share Subscription Agreement, which underlying shares of common stock shall be equal to 4% of our total equity interests outstanding immediately after consummation of the Direct Listing, as more particularly discussed under "*Risk Factors—Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our product candidates on unfavorable terms to us."*

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

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and related notes and other financial information appearing elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this prospectus, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a clinical-stage cell therapy company focused on developing and commercializing fibroblast-based therapies for patients suffering from chronic diseases with significant unmet medical needs, including degenerative disc disease, multiple sclerosis, wound healing, and certain cancers, and potential extension of life applications including thymic and splenic involution reversal. At present, our novel manufacturing process entails collecting excess tissue from surgical procedures and using the allogeneic fibroblasts to grow a cell bank for use in our procedures. Our most advanced product candidates are CybroCell™ and CYMS101.

CybroCell™ is an allogeneic fibroblast cell-based therapy for degenerative disc disease and is being designed as an alternative method for repairing the cartilage of the intervertebral disc (or any other articular cartilage). We have completed two animal studies. The results from the studies were positive and resulted in "first in human" trial approval. We have received IND clearance from the FDA, conditional upon approval of our master cell bank, to run a Phase 1/2 study for patients suffering from degenerative disc disease and will be conducting this study within the United States. A timeline will be determined through discussions with the FDA.

We are developing CYMS101 as an allogeneic fibroblast cell-based therapy to treat MS. After completing animal studies using CYMS101 (allogeneic fibroblast cells), we received approval to conduct clinical investigations in Mexico using the fibroblast cell composition for patients with MS and have completed a Phase 1 study. The study was conducted in five participants. The primary objective of the study was to assess safety, and the secondary objective was to assess efficacy. We are currently conducting further research to determine the mode of action of fibroblasts in oligodendrocyte expansion and expect to file an IND application for a Phase 2 clinical trial in MS. We will likely seek a strategic partner to collaborate with us on the development of CYMS101 either before initiating the Phase 2 study, or after its completion, if successful, and prior to commencing with a Phase 3 clinical trial.

We are in the early stages of developing CYWC628 as an allogeneic fibroblast cell-based therapy for wound healing. Our studies are presently focused on utilizing fibroblasts and fibroblast-derived cells to treat wounds in diabetic mice and rats. Based upon our results achieved to date, we plan to pursue an IND submission with the FDA for wound healing as early as 2024.

We also have cancer and extension of life programs in the early stages of development and we plan to accelerate such programs as funding allows.

We currently purchase our cell therapy product candidates from a CDMO. We are in the process of contracting with a CDMO for the transfer of our experimental cell bank to produce our master cell bank, working cell bank and our fibroblast cell-based product candidates to enable clinical trials. If our product candidates receive marketing approval, we will evaluate the longer-term feasibility of building our own cGMP manufacturing facility or continuing to outsource production to a CDMO for clinical testing and commercial sales.

Since our spinoff from FibroGenesis in April 2021, our operations have included business planning, hiring personnel, raising capital, building our intellectual property portfolio and performing research and development on our product candidates and our fibroblast technology, leveraging the clinical benefits of fibroblasts as the basis of our cell therapy platform.

We have incurred net losses since inception and expect to incur losses in the future as we continue our research and development activities. To date, we have funded our operations primarily through investment from FibroGenesis, the issuance of $5.6 million of our convertible promissory notes that were issued from December 2021 through April 2022, and the issuance of $18.6 million of preferred stock.

As of June 30, 2023, we had cash and cash equivalents of approximately $11.4 million. Since our inception, we have incurred significant operating losses. We incurred net losses of approximately $4.6 million and $2.0 million for the six months ended June 30, 2023 and 2022, respectively, and $5.1 million and $1.6 million for the years ended December 31, 2022 and 2021, respectively. As of June 30, 2023, we had an accumulated deficit of approximately $12.4 million. We expect to continue to incur significant expenses and operating losses for the next several years. See "—*Funding Requirements*" below.

We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase substantially if and as we:

- advance the development of our lead product candidates through clinical development, and, if approved by the FDA, commercialization;
- advance our preclinical development programs into clinical development;
- incur manufacturing costs for cell production to supply our product candidates;
- seek regulatory approvals for any of our product candidates that successfully complete clinical trials;
- increase our research and development activities to identify and develop new product candidates;
- hire additional personnel;
- expand our operational, financial and management systems;
- meet the requirements and demands of being a public company;
- invest in further development to protect and expand our intellectual property;
- establish a sales, marketing, medical affairs and distribution infrastructure to commercialize any product candidates for which we may obtain marketing approval and intend to commercialize; and
- expand our manufacturing and develop our commercialization efforts.

Due to the numerous risks and uncertainties associated with biopharmaceutical product development and the economic and developmental uncertainty, we may be unable to accurately predict the timing or magnitude of all expenses. Our ability to ultimately generate revenue to achieve profitability will depend heavily on the development, approval, and subsequent commercialization of our product candidates. If we fail to become profitable or are unable to sustain profitability on a continuing basis, then we may be unable to continue our operations at planned levels and be forced to reduce or terminate our operations.

As a result, we will need substantial additional funding to support our long-term continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through the sale of equity, debt financings or other capital sources, which may include collaborations with other companies or other strategic transactions. We may not be able to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as and when needed, we will have to significantly delay, reduce or eliminate the development and commercialization of one or more of our product candidates or delay our pursuit of potential in-licenses or acquisitions.

Components of Results of Operations

Revenue

To date, we have not generated any revenue from product sales and do not expect to generate any revenue from the sale of products in the foreseeable future. If our development efforts for any of our product candidates are successful and result in regulatory approval, we may generate revenue in the future from product sales. We cannot predict if, when or to what extent we will generate revenue from the commercialization and sale of any of our product candidates. We may never succeed in obtaining regulatory approval for any of our product candidates.

Research and Development Expenses

Our research and development expenses consist of expenses incurred in connection with the development of our product candidates and include:

- employee-related expenses, which include salaries, benefits, travel and stock-based compensation for our research and development personnel;
- laboratory equipment and supplies;
- direct third-party costs such as expenses incurred under agreements with CROs and CMOs;
- consultants that conduct research and development activities on our behalf;
- costs associated with conducting preclinical studies and clinical trials;
- costs associated with technology; and
- facilities and other allocated expenses, which include expenses for rent and other facility related costs and other supplies.

We expense research and development costs as incurred. Nonrefundable advance payments that we make for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. The prepaid amounts are expensed as the related goods are delivered or the services are performed.

We expect our research and development expenses to increase substantially for the foreseeable future as we continue to invest in research and development activities related to developing our product candidates as they advance into later stages of clinical development and our other product candidates in preclinical development as they advance into clinical development. The process of conducting the necessary clinical research to obtain regulatory approval is costly and time-consuming, and the successful development of our product candidates is highly uncertain. As a result, we are unable to determine the duration and completion costs of our research and development projects or when and to what extent we will generate revenue from the commercialization and sale of any of our product candidates. This is due to the numerous risks and uncertainties associated with developing product candidates, including uncertainty related to:

- the duration, costs and timing of clinical trials of our current development programs and any further clinical trials related to new product candidates;
- the sufficiency of our financial and other resources to complete the necessary preclinical studies and clinical trials;
- the acceptance of IND applications for future clinical trials;
- the successful and timely enrollment and completion of clinical trials;
- the successful completion of preclinical studies and clinical trials;
- successful data from our clinical program that supports an acceptable risk-benefit profile of our product candidates in the intended populations;
- the receipt and maintenance of regulatory and marketing approvals from applicable regulatory authorities;
- establishing agreements with third-party manufacturers for clinical supply for our clinical trials and commercial manufacturing, if any of our product candidates are approved;
- the entry into collaborations to further the development of our product candidates;
- obtaining and maintaining patent and trade secret protection and regulatory exclusivity for our product candidates; and
- successfully launching our product candidates and achieving commercial sales, if and when approved.

A change in the outcome of any of these variables with respect to the development of any of our programs or any product candidate we develop would significantly change the costs, timing and viability associated with the development and/or regulatory approval of such programs or product candidates.

General, Administrative and Other Expenses

Our general, administrative, and other expenses consist primarily of personnel costs, allocated facilities costs, and other expenses for outside professional services, including legal, marketing, investor relations, human resources services, and accounting services. Personnel costs consist of salaries, benefits, and stock-based compensation for our general and administrative personnel. We expect to incur additional expenses as a result of operating as a public company, including expenses related to compliance with the rules and regulations of the SEC, Nasdaq, additional insurance expenses, investor relations activities and other administrative and professional services. We also expect to increase the size of our administrative function to support the growth of our business.

Interest Expense

Our interest expense consists primarily of accrued interest expense and amortization of discount on our convertible notes.

Statements of Operations

Results of Operations

Comparison of Fiscal Years December 31, 2022 and 2021

The following table sets forth our results of operations for the years ended December 31, 2022 and 2021.

	Fiscal Year Ended December 31,		Change Amount
	2022	2021	
	(in thousands)		
Operating expenses**:**			
Research and development	$ 1,147	$ 521	$ 626
General, administrative and other	3,320	1,057	2,263
Total operating expenses	4,467	1,578	2,889
Loss from operations	(4,467)	(1,578)	(2,889)
Interest expense	(654)	(4)	(650)
Net loss	$ (5,121)	$ (1,582)	$ (3,539)

Research and Development Expenses

Research and development expenses were $1.1 million and $0.5 million for the years ended December 31, 2022 and 2021, respectively. The increase of $0.6 million was primarily due to:

- increased personnel related expenses of $0.4 million due to hiring our chief scientific officer in July 2021 and two additional research scientists by December 2022;
- increased research facility costs of $0.1 million due to licensing and expanding temporary laboratory and office space; and
- increased research supplies of $0.1 million due to increased laboratory personnel and preclinical studies.

Research and development expenses are not tracked by product candidate.

General, Administrative and Other Expenses

General, administrative and other expenses were $3.3 million and $1.1 million for the years ended December 31, 2022 and 2021, respectively. The increase of $2.3 million was primarily due to:

- increased personnel-related expenses of $0.9 million due to the timing of hiring our chief executive officer in August 2021 and our chief financial officer in June 2022;
- increased accounting, legal, marketing and consulting expenses of $0.7 million for costs associated with preparing to become a public company;
- increased facilities expense of $0.4 million for the cost of our leased office space, and
- increased board of directors expenses of $0.2 million due to establishing an independent board of directors after formation in 2021.

Interest Expense

Interest expense was $0.7 million and $0.0 million for the years ended December 31, 2022 and 2021, respectively. The increase of $0.7 million was due to the issuance of convertible notes in December 2021, January 2022, and April 2022. Interest expense was recorded in 2022 for the nominal interest rate of 6.0% plus the amortization of the discount on the 2022 convertible notes.

Income Taxes

The effective income tax rate was 0.0% for all periods. Currently, we have recorded a full valuation allowance against our net deferred tax assets.

Comparison of Six Months Ended June 30, 2023 and 2022

The following table sets forth our results of operations for the six months ended June 30, 2023 and 2022.

	Six Months Ended June 30,		Change Amount
	2023	2022	
	(unaudited, in thousands)		
Operating expenses**:**			
Research and development	$ 1,021	$ 454	$ 567
General, administrative and other	3,337	1,368	1,969
Total operating expenses	4,358	1,822	2,536
Loss from operations	(4,358)	(1,822)	(2,536)
Other loss	(72)	—	(72)
Interest expense	(146)	(213)	67
Net loss	$ (4,576)	$ (2,035)	$ (2,541)

Research and Development Expenses

Research and development expenses were $1.0 million and $0.5 million for the six months ended June 30, 2023 and 2022, respectively. The increase of $0.5 million was primarily due to:

- increased personnel related expenses of $0.3 million due to hiring three additional research scientists and granting stock options in 2023;
- increased research consultant costs of $0.1 million to provide technical writing support; and
- increased research facility and laboratory supplies of $0.1 million due to increased laboratory personnel and preclinical studies.

Research and development expenses are not tracked by product candidate.

General, Administrative and Other Expenses

General, administrative and other expenses were $3.3 million and $1.4 million for the six months ended June 30, 2023 and 2022, respectively. The increase of $1.9 million was primarily due to:

- increased personnel-related expenses of $1.2 million due to the timing of hiring our chief financial officer in June 2022, stock options granted in 2023, and executive bonus in 2023;
- increased accounting, legal, marketing and consulting expenses of $0.4 million for costs associated with preparing to become a public company;
- increased facilities expense of $0.2 million for the cost of our leased office space, and
- increased board of directors expenses of $0.1 million due to stock options granted in 2023.

Other loss

Other loss was $0.1 million and none for the six months ended June 30, 2023 and 2022, respectively. Other loss is comprised of the ROFN payments to FibroGenesis in excess of the derivative liability established at inception of the ROFN Agreement in January 2023.

Interest Expense

Interest expense was $0.1 million and $0.2 million for the six months ended June 30, 2023 and 2022, respectively. The decrease of $0.1 million was due to the maturities and conversions of the notes during the six months ended June 30, 2023. Interest expense was recorded in 2022 and 2023 for the nominal interest rate of 6.0% plus the amortization of the discount on the 2022 convertible notes.

Income Taxes

The effective income tax rate was 0.0% for all periods. Currently, we have recorded a full valuation allowance against our net deferred tax assets.

Liquidity and Capital Resources

Overview

To date, we have financed our operations primarily with investment from FibroGenesis, proceeds from borrowings under our convertible loan agreements, and proceeds from the issuance of preferred stock. From inception through June 30, 2023, we have received aggregate proceeds of approximately $5.6 million from sales of our convertible notes and $17.3 million from the issuance of preferred stock. As of June 30, 2023, we had cash and cash equivalents of approximately $11.4 million and an accumulated deficit of approximately $12.4 million. As of June 30, 2023, we had no outstanding debt.

Cash Flows

The following table sets forth a summary of our cash flows for the years ended December 31, 2022 and 2021.

	Year Ended December 31,	
	2022	2021
	(in thousands)	
Net cash used in operating activities	$ (4,066)	$ (1,410)
Net cash provided by financing activities	5,925	1,817
Net increase in cash and cash equivalents	$ 1,859	$ 407

Operating Activities

Net cash used in operating activities was $4.1 million and $1.4 million for the years ended December 31, 2022 and 2021, respectively, and consisted primarily of net losses of $5.1 million and $1.6 million, respectively. An increase of $0.5 million in accounts payable and accrued expenses, plus noncash expenses of $0.3 million in stock-based compensation expense and $0.4 million in amortization of convertible notes debt discount, partially offset the net losses in the year ended December 31, 2022. An increase of $0.2 million in accounts payable and accrued expenses partially offset the net losses in the year ended December 31, 2021.

Financing Activities

Net cash provided by financing activities was approximately $5.9 million and $1.8 million for the years ended December 31, 2022 and 2021. In 2021, we received nearly $1.0 million from FibroGenesis through a loan agreement and repaid approximately $0.8 million in the same year, and FibroGenesis invested $0.3 million during the first quarter of 2021 as part of our carve-out from FibroGenesis. We also received $1.3 million from the issuance of convertible notes in December 2021. In 2022, we received $4.3 million from the issuance of convertible notes in January and April 2022, and received $2.2 million from the issuance of preferred stock in December 2022. We repaid $0.2 million and loaned $0.4 million to FibroGenesis in 2022, and FibroGenesis repaid $0.1 million to us in 2022.

The following table sets forth a summary of our cash flows for the six months ended June 30, 2023 and 2022.

	Six Months Ended June 30,	
	2023	2022
	(in thousands)	
Net cash used in operating activities	$ (3,661)	$ (1,526)
Net cash used in investing activities	(80)	—
Net cash provided by financing activities	12,853	4,075
Net increase in cash and cash equivalents	$ 9,112	$ 2,549

Operating Activities

Net cash used in operating activities was $3.7 million and $1.5 million for the six months ended June 30, 2023 and 2022, respectively, and consisted primarily of net losses of $4.5 million and $2.0 million, respectively. An increase of $0.2 million in accounts payable and accrued expenses, plus noncash expenses of $0.9 million in stock-based compensation expense, less a $0.3 million increase in other current assets, partially offset the net losses in the six months ended June 30, 2023. An increase of $0.2 million in accounts payable and accrued expenses, plus noncash expenses of $0.2 million in stock-based compensation expense and $0.1 million in amortization of convertible notes debt discount partially offset the net losses in the six months ended June 30, 2022.

Investing Activities

Net cash used in investing activities was approximately $0.1 million and none for the six months ended June 30, 2023 and 2022. The increase was due to the purchase of laboratory equipment.

Financing Activities

Net cash provided by financing activities was approximately $12.9 million and $4.1 million for the six months ended June 30, 2023 and 2022. We received from FibroGenesis repayment of a $0.3 million loan, paid to FibroGenesis $2.6 million under the ROFN Agreement (as defined herein), and we received $15.2 million in total from the issuance of Series B Preferred Stock and Series B-1 Preferred Stock during the six months ended June 30, 2023. We repaid to FibroGenesis a $0.2 million loan and received $4.3 million from the issuance of convertible notes during the six months ended June 30, 2022.

Funding Requirements

We do not have any products approved for sale, and we have never generated any revenue from contracts with customers. We do not expect to generate any meaningful revenue unless and until we obtain regulatory approval of and commercialize any of our current or future product candidates and we do not know when, or if, that will occur. We expect to continue to incur significant losses for the foreseeable future, and we expect the losses to increase as we continue the development of, and seek regulatory approvals for, our current and future product candidates, and begin to commercialize any approved products. We are subject to all the risks typically related to the development of new product candidates, and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. Moreover, following the completion of this offering, we expect to incur additional costs associated with operating as a public company.

The financial statements have been prepared as though we will continue as a going concern, which contemplates the realization of assets and satisfaction of liabilities in the normal course of business. We have incurred operating losses and negative cash flows from operations since inception. As of June 30, 2023, we had an accumulated deficit of approximately $12.4 million. Management expects to continue to incur operating losses and negative cash flows.

We will need to raise additional capital to continue to fund our operations. We believe we will be able to obtain additional capital through equity financings or other arrangements to fund operations; however, there can be no assurance that such additional financing, if available, can be obtained on acceptable terms. If we are unable to obtain such additional financing, future operations would need to be scaled back or discontinued.

We believe that our existing capital will enable us to fund our operations through at least September 30, 2024. We may need to raise additional capital in connection with our cash needs for capital expenditures and working capital beyond September 30, 2024. We have based the foregoing estimate on assumptions that may prove to be incorrect, and we could use our capital resources sooner than we expect.

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

- the initiation, progress, timeline, cost and results of our clinical trials for our product candidates;
- the initiation, progress, timeline, cost and results of additional research and preclinical studies related to pipeline development and other research programs we initiate in the future;
- the cost and timing of manufacturing activities, including our planned manufacturing scale-up activities associated with our product candidates and other programs as we advance them through preclinical and clinical development through commercialization;
- the potential expansion of our current development programs to seek new indications;
- the outcome, timing and cost of meeting regulatory requirements established by the FDA and other comparable foreign regulatory authorities;

- the cost of filing, prosecuting, defending and enforcing patent claims and other intellectual property rights, in-licensed or otherwise;
- the effect of competing technological and market developments;
- the payment of licensing fees, potential royalty payments and potential milestone payments;
- the cost of general operating expenses;
- the cost of establishing sales, marketing and distribution capabilities for any product candidates for which we may receive regulatory approval in regions where we choose to commercialize our products on our own; and
- the costs of operating as a public company.

Further, our operating plan may change, and we may need additional funds to meet operational needs and capital requirements for clinical trials and other research and development expenditures.

If we need to raise additional capital to fund our operations, funding may not be available to us on acceptable terms, or at all. If we are unable to obtain adequate financing when needed, we may have to delay, reduce the scope of or suspend one or more of our preclinical studies, clinical trials, research and development programs or commercialization efforts. We may seek to raise any necessary additional capital through a combination of public or private equity offerings, debt financings, collaborations and other licensing arrangements. If we raise additional capital through debt financing, we may be subject to covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional capital through marketing and distribution arrangements or other collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish certain valuable rights to our product candidates, technologies, future revenue streams or research programs or grant licenses on terms that may not be favorable to us.

Contractual Obligations and Commitments

As of December 31, 2022, our commitments consisted of convertible notes payable and two leases for laboratory and office space in Houston, Texas. As of June 30, 2023, our commitments consisted of two leases for laboratory and office space in Houston, Texas.

The following table summarizes our contractual obligations as of December 31, 2022.

	Total	Less Than One Year	1–3 Years	3–5 Years	More Than 5 Years
			(in thousands)		
Convertible notes payable obligations	$ 5,600	$ 5,600	$ —	$ —	$ —
Operating lease obligations	2,484	466	1,509	509	—
Total	$ 8,084	$ 6,066	$ 1,509	$ 509	$ —

The convertible notes payable were converted into Series B Preferred Stock during the six months ended June 30, 2023.

The following table summarizes our contractual obligations as of June 30, 2023.

	Payments Due by Period				
	Total	Less Than One Year	1–3 Years	3–5 Years	More Than 5 Years
		(in thousands)			
Operating lease obligations	$ 2,230	$ 472	$ 976	$ 782	$ —
Total	$ 2,230	$ 472	$ 976	$ 782	$ —

Off-Balance Sheet Arrangements

During the periods presented, we did not have, nor do we currently have, any off-balance sheet arrangements or holdings in any variable interest entities.

Critical Accounting Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our financial statements, which have been prepared in accordance with 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 dates of the balance sheets and the reported amounts of expenses during the reporting periods. In accordance with GAAP, we evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We define our critical accounting estimates as those under GAAP that require us 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 included elsewhere in this prospectus, we believe the following are the critical accounting estimates used in the preparation of our financial statements that require significant estimates and judgments.

Net Parent Investment

Because our financial statements prior to inception on April 8, 2021, are derived from the historical records of FibroGenesis, the net parent investment is presented within stockholders' deficit on the balance sheets. As a then subsidiary of FibroGenesis, we were dependent upon FibroGenesis for all of our working capital and financing requirements prior to entering into our convertible note agreements. Financial transactions that relate to FibroBiologics but occurred at the parent level are accounted for through the net parent investment account. Accordingly, none of FibroGenesis' cash, cash equivalents or debt have been assigned to us in the financial statements. Net parent investment represents FibroGenesis' interest in our recorded net assets.

Research and Development

Research and development costs are charged to expense as incurred. Research and development costs consist of costs incurred in performing research and development activities, including salaries and bonuses, scientist recruiting costs, employee benefits, facilities costs, laboratory supplies, manufacturing expenses, preclinical expenses, research materials, and consulting and other contracted services. Costs for certain research and development activities are recognized based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the financial statements as prepaid or accrued research and development.

Convertible Notes Payable

We entered into multiple convertible promissory note agreements in December 2021, or, collectively, the 2021 Notes. Under the 2021 Notes, we received $1.3 million, which accrued simple interest at a rate of 6.0% per annum and was to mature in the event of our initial public offering. Upon maturity of the 2021 Notes, the holders could elect to receive cash payment in full for the outstanding principal and interest or elect a one-year extension at the discretion of the holders of the 2021 Notes.

In the event that we issued and sold shares of our capital stock in excess of $10.0 million, the outstanding balance of the 2021 Notes and accrued interest could be converted into a fixed number of shares of common stock, subject only to customary anti-dilution provisions for any recapitalization that may occur.

Based on the terms of the 2021 Notes, we evaluated the conversion option feature in accordance with ASC 815 Derivatives and Hedging. It provides three criteria that, if met, require companies to bifurcate conversion options from their host instruments and account for them as freestanding derivative financial instruments. These three criteria include circumstances in which (i) the economic characteristics and risks of the embedded derivative instrument are not clearly and closely related to the economic characteristics and risks of the host contract, (ii) the hybrid instrument that embodies both the embedded derivative instrument and the host contract is not re-measured at fair value under otherwise applicable generally accepted accounting principles with changes in fair value reported in earnings as they occur and (iii) a separate instrument with the same terms as the embedded derivative instrument would be considered a derivative instrument.

At the issuance of the 2021 Notes, and at December 31, 2021 and 2022, we determined that an embedded derivative for the conversion feature did not meet the criteria because it met the "indexed to the entity's own stock" exception and therefore was not required to be bifurcated from the host instrument. As noted below, all of the 2021 Notes were converted into shares of our Series B Preferred Stock during the six months ended June 30, 2023.

We issued additional convertible promissory notes between January and April 2022 with a total principal amount of $4.3 million and a one-year maturity, or, collectively, the 2022 Notes. The 2022 Notes could be converted at the lesser of (i) a 15% discount to the offering price of our common stock in the event of our initial public offering or (ii) the quotient of $200.0 million divided by total equity interests prior to the dilution from the offering. The conversion option feature in the 2022 Notes was evaluated in accordance with ASC 815, and a derivative liability for the $0.5 million estimated fair value of the conversion option was recorded at the time the notes were issued and as of December 31, 2022. An offsetting discount on the issuance of the notes was recorded and is being amortized to interest expense over the expected life of the 2022 Notes.

In February 2023, we converted the principal and interest on $3.7 million of principal value of the 2022 Notes into the equivalent of 799,603 shares of our Series B Preferred Stock. In April 2023, we converted the principal and interest on $1.6 million of principal value of the 2021 Notes and $0.3 million of principal value on the 2022 Notes into the equivalent of 353,713 shares of our Series B Preferred Stock. In June 2023, we converted the remaining $0.3 million of principal value on the 2022 Notes into the equivalent of 66,077 shares of our Series B Preferred Stock. There was no outstanding principal balance on the 2022 Notes at June 30, 2022.

The convertible debt balances were none and $5.6 million at June 30, 2023 and 2022, respectively.

Stock-Based Compensation

We measure all stock option grants to employees, directors and non-employees based on their fair value on the date of the grant and recognize the corresponding compensation expense of those awards using the straight-line method over the requisite service period, which is generally the vesting period of the respective award. Forfeitures are accounted for as they occur.

We classify stock-based compensation expense in our statements of operations in the same way the award recipient's payroll costs are classified or in which the award recipient's service payments are classified.

We estimate the fair value of each stock option grant using the Black-Scholes option-pricing model, which uses as inputs the fair value of our common stock and assumptions we make for the volatility of our common stock, the expected term of our stock options, the risk-free interest rate for a period that approximates the expected term of our stock options and our expected dividend yield.

The estimated fair value of our common stock underlying our stock-based awards has been determined by our board of directors as of each option grant date with input from management, considering our most recently available third-party valuations of common stock and our board of directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation (the Practice Aid).

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

See Note 11 to our audited financial statements included elsewhere in this prospectus for further information concerning the assumptions we used in in determining stock-based compensation.

ROFN Agreement

In January 2023, we entered into an Agreement Regarding Right of First Negotiation with FibroGenesis, or the ROFN Agreement. In exchange for FibroGenesis' consent to amend our certificate of incorporation to (i) eliminate upon our underwritten initial public offering or the direct listing of our common stock on a securities exchange (which we collectively refer to as an IPO) or sale of our company, the liquidation preference for the Series A Preferred Stock, (ii) make the Series B Preferred Stock liquidation preference equal to Series A Preferred Stock, and (iii) to provide that upon an IPO or sale of our company, the Series A Preferred Stock will be canceled for no consideration, we agreed to pay to FibroGenesis 15% of the gross proceeds from any equity investments in us prior to an IPO or sale of our company. In addition, we received a five-year right of first negotiation if FibroGenesis decides to license externally any of its technology. Based upon our management's estimates at execution of the ROFN Agreement of capital to be raised in advance of a public listing, we recorded a derivative liability of $2.6 million for the expected future payments to FibroGenesis. As a deemed dividend, the derivative liability was recorded first against the net Parent Investment and then to Additional paid-in capital after the net Parent Investment was eliminated. Amounts paid to FibroGenesis in excess of the derivative liability are recorded as other losses in the statement of operations. The deemed dividend is included as a reduction to net loss in the calculation of amount available to common stockholders in determining earnings per share.

The JOBS Act

We are an "emerging growth company" as defined in the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies.

We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates. If we were to subsequently elect instead to comply with these public company effective dates, such election would be irrevocable pursuant to the JOBS Act.

We will remain an emerging growth company until the earliest of (i) December 31, 2028, (ii) the last day of the fiscal year in which we have total annual gross revenue of at least $1.235 billion, (iii) the last day of the fiscal year in which we are deemed to be a "large accelerated filer" as defined in Rule 12b-2 under the Exchange Act, which would occur if the market value of our common stock held by non-affiliates was $700.0 million or more as of the last business day of the second fiscal quarter of such year or (iv) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period.

Quantitative and Qualitative Disclosures About Market Risk

The primary objectives of our investment activities are to ensure liquidity and to preserve capital. We are exposed to market risks in the ordinary course of our business. These risks primarily include interest rate sensitivities. We had cash and cash equivalents of approximately $11.4 million and $2.3 million as of June 30, 2023 and December 31, 2022, respectively, which consisted of bank deposits. Historical fluctuations in interest rates have not been significant for us. Due to the short-term maturities of our cash

equivalents, an immediate 100 basis point change in interest rates would not have a material effect on the fair market value of our cash equivalents. We do not believe that inflation, interest rate changes, or foreign currency exchange rate fluctuations had a significant impact on our results of operations for any periods presented herein.

BUSINESS

Overview

We are a clinical-stage cell therapy company focused on developing and commercializing fibroblast-based therapies for patients suffering from chronic diseases with significant unmet medical needs, including degenerative disc disease, multiple sclerosis, wound healing, and certain cancers, and potential extension of life applications including thymic and splenic involution reversal.

We were formed in April 2021 as a Texas limited liability company under the name FibroBiologics, LLC, and converted to a Delaware corporation in December 2021 under the name Fibrobiologics, Inc. On April 14, 2023, we changed our name to FibroBiologics, Inc. In connection with our formation, we issued shares of our Series A Preferred Stock, or the Series A Preferred Stock, to our then parent, FibroGenesis, in return for rights to certain intellectual property through a patent assignment agreement and an intellectual property cross-licensing agreement. Developing the intellectual property obtained from FibroGenesis was the basis for our formation. Prior to our inception, preclinical research and development related to the aforementioned disease pathways took place under FibroGenesis.

Fibroblasts Technology Platform

Fibroblasts and stem cells are the only two cell types in the human body that can regenerate tissue and organs. Studies have indicated that mesenchymal stem cells and fibroblasts share many surface markers in common, and can differentiate into many cells including adipocytes, chondrocytes, osteoblasts, hepatocytes, and cardiomyocytes, and can regulate the immune system. However, transcriptomic and epigenetic studies have indicated a clear difference between the two cell types.

Fibroblasts comprise the main cell type of connective tissue, possessing a spindle-shaped morphology, whose classical function has historically been believed to produce an extracellular matrix responsible for maintaining the structural integrity of the tissue. Fibroblasts also play an important role in the proliferative phase of wound healing, resulting in the deposition of the extracellular matrix.

Fibroblasts are favorable to stem cells as a cell therapy treatment platform because fibroblasts:

- can be non-invasively harvested from a variety of skin donors from surgical procedures such as tummy tuck flaps;
- have a faster doubling time in culture than stem cells;
- possess superior immune modulatory activity compared with stem cells;
- exhibit enhanced ability to produce regenerative cytokines and growth factors compared with stem cells; and
- are more economical to isolate, culture and expand compared with stem cells because fibroblasts do not require the use of expensive tissue culture media.

Studies have demonstrated that allogeneic fibroblasts, much like mesenchymal stem cells, are immune-privileged and do not provoke an immune response *in vitro* and *in vivo*. These studies include that of Valente and colleagues (PMID 7646145) in which they looked at the aortic valve after heart transplantation and noted that even acute cases of acute myocardial rejection did not appear to compromise the long-term viability and durability of the valve, and the tissue viability was histologically confirmed and showed perfectly preserved fibroblasts[1]. In another study by O'Brien and colleagues (PMID 3682851) the researchers illustrated, using chromosomal analysis, long-term viability of the male donor fibroblast cells from a valve leaflet removed nine years after implantation into a female recipient. This illustrated that donor fibroblast cells are able to survive and proliferate in the host with destruction by the immune system[2]. If autologous fibroblasts were required instead, it would mean that cells would have to be harvested from each patient, processed and cultured, and then administered to the same patient, which would be more costly and inefficient. Because allogeneic fibroblasts do not cause an immune response, we are planning to build our own cGMP manufacturing facility to source allogeneic fibroblast cells for clinical testing of our product candidates and for commercial sales if product candidates receive marketing approval.

Our Strategy

We are leveraging fibroblast cells as a technology platform to research and develop innovative treatments for chronic diseases with significant unmet treatment needs. Our vision is to become a world leader in regenerative medicine through a rigorous scientific process and commitment to serving patients' needs. To achieve our vision, we will focus our efforts on the following strategy:

- Attract and retain scientists with the skill sets required to conduct preclinical studies and identify the optimal paths forward to clinical trials.
- Prioritize our initial clinical development efforts on product candidates with the combination of significant unmet treatment needs, lower risk and market potential.
- Partner with CROs with the relevant expertise and experience to successfully and timely execute clinical trials to generate reliable pivotal data that can be used to seek approvals.
- Invest in critical capabilities required to produce and supply fibroblasts for clinical trials and initial commercialization.
- Protect, expand and defend our intellectual property portfolio around fibroblasts.
- Expand development efforts in product candidates with longer development timelines, greater risk and significant unmet treatment needs as funding allows.

As of June 30, 2023, we had cash and cash equivalents of approximately $11.4 million. To advance our aforementioned strategy over the next 12 months, in addition to ongoing expenditures for personnel and infrastructure, the following research and development initiatives are expected to be funded with available capital:

- Approximately $0.5 million to $0.7 million in capital expenditures for laboratory equipment to enable continued research and expand capabilities;
- Approximately $0.3 million to $0.4 million to acquire clinical skin samples;
- Approximately $0.2 million to $0.3 million for tissue and fibroblast cell characterization and optimization;
- Approximately $0.2 million to $0.4 million to develop a master cell bank;
- Approximately $0.1 million to $0.3 million to develop a working cell bank;
- Approximately $0.1 million to $0.3 million to develop processes for transfer to a CDMO;
- Approximately $0.1 million to $0.3 million to complete one additional animal study for CYWC628 in wound healing;
- Approximately $0.1 million to submit an IND application for CYWC628 for a phase 1/2 clinical trial in wound healing;
- Approximately $0.2 million to $0.3 million to complete a preclinical animal study to determine mode of action for CYMS101 in MS prior to submitting an IND application for a phase 1/2 clinical trial in MS; and
- Approximately $0.1 million to initiate a preclinical animal study in CYTER915 for thymic involution reversal.

We believe our available capital will allow us to develop the master cell bank, and working cell bank for transfer to a CDMO that will ultimately manufacture our drug products required to initiate phase 1/2 clinical trials for CybroCell, CYMS101, and CYWC628.

The above estimates are preliminary and subject to change. We cannot specify with certainty all of the particular uses for our available capital within the next 12 months. Due to uncertainties inherent in the development process, it is difficult to estimate the exact amounts of our available capital that will be used for any particular purpose. In addition, the amount, allocation and timing of our actual expenditures will depend upon numerous factors, including the results of our research and development efforts.

Our People

We have assembled an executive leadership team comprised of our founder, chief executive officer and chairperson of our board of directors, our chief scientific officer, and our chief financial officer, with successful track records in startup entrepreneurial companies and in the life sciences industry. Our executive leadership team works under the oversight of our board of directors who are recognized leaders with hands-on industry experience. We also have a team of world-renowned scientists with relevant expertise on our scientific advisory board to help guide our research and development efforts.

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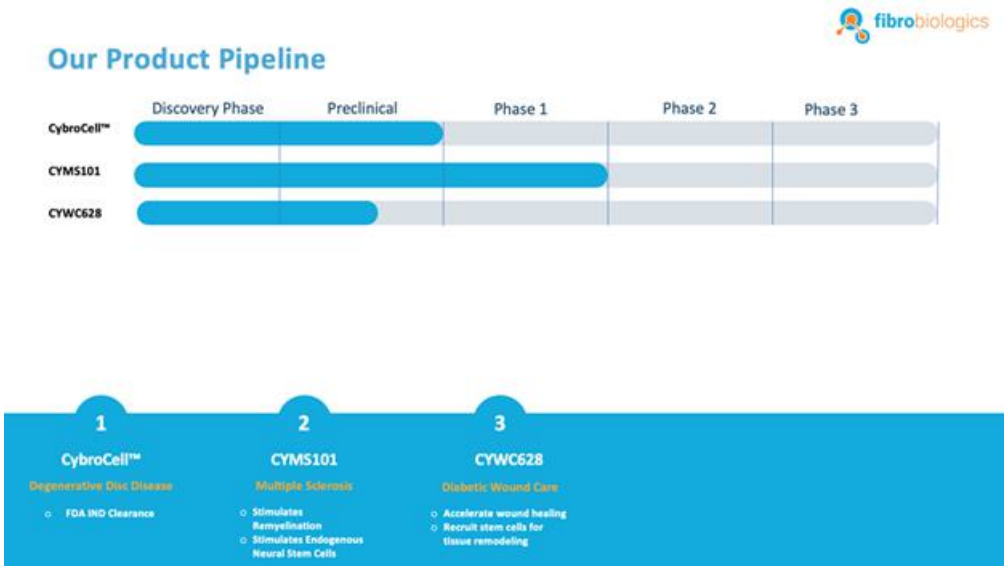
[1] Source: Valente M, Faggian G, Billingham ME, Talenti E, Calabrese F, Casula R, Shumway NE, Thiene G. The aortic valve after heart transplantation. Ann Thorac Surg. 1995 Aug;60(2 Suppl):S135-40. doi: 10.1016/0003-4975(95)00251-f. PMID: 7646145.

[2] Source: O'Brien MF, Stafford EG, Gardner MA, Pohlner PG, McGiffin DC. A comparison of aortic valve replacement with viable cryopreserved and fresh allograft valves, with a note on chromosomal studies. J Thorac Cardiovasc Surg. 1987 Dec;94(6):812-23. PMID: 3682851.

Our Current Pipeline

We have a pipeline of product candidates at various stages of development, including the following:



CybroCell™ for Degenerative Disc Disease

Degenerative Disc Disease

Back pain is strongly associated with degeneration of the intervertebral disc. Disc degeneration, although in many cases asymptomatic, is also associated with sciatica and disc herniation, pain or prolapse. It alters disc height and the mechanics of the rest of the spinal column, adversely affecting the behavior of other spinal structures such as muscles and ligaments. In the long term, it can lead to spinal stenosis, a major cause of pain and disability in the elderly. Its incidence is rising with current demographic changes and an increased aged population.

The disc acts as a joint between two vertebra and performs the following critical functions:

- absorbs shock;
- maintains motion; and
- keeps stability.

Discs degenerate far earlier than do other musculoskeletal tissues. The first unequivocal findings of degeneration in the lumbar discs are seen in the age group 11–16 years. About 20% of people in their teens have discs with mild signs of degeneration. The percentage increases sharply with age, particularly in males, so that around 10% of 50-year-old discs and 60% of 70-year-old discs are severely degenerated (*Current Epidemiology of Low Back Pain*" by Mattiuzzi et al, in 2020).

During growth and skeletal maturation, the boundary between annulus and nucleus becomes less obvious and, with increasing age, the nucleus generally becomes more fibrotic and less gel-like. With increasing age and degeneration, the disc changes in morphology, becoming more and more disorganized. Often, the annular lamellae becomes irregular, bifurcating and interdigitating, and the collagen and elastin networks also appear to become more disorganized.

Cleft formation with fissures frequently forms within the disc, particularly in the nucleus. Nerves and blood vessels are increasingly found with degeneration. Cell proliferation occurs, leading to cluster formation in the nucleus. Cell death also occurs, with the presence of cells with necrotic and apoptotic appearance. It has been reported that more than 50% of cells in adult discs are necrotic. With increasing age comes an increased incidence of degenerative changes, including cell death, cell proliferation, mucous degeneration, granular change and concentric tears. It is difficult to differentiate changes that occur solely due to aging from those that might be considered 'pathological'.

According to research published in the Global Spine Journal, titled "*Degenerative Lumbar Spine Disease: Estimating Global Incidence and Worldwide*" by Ravindra et al published in 2018, approximately 266.0 million individuals suffer from degenerative spinal disease and lower back pain each year. In addition, 403.0 million individuals present annually with symptomatic disc degeneration, 103.0 million with spinal stenosis and 39.0 million with spondylolisthesis. Furthermore, lower back pain is considered as one of the chief complaints that may indicate an underlying spine-related disorder. According to the research published in the Journal of Hospital Management and Health Policy, titled "*Current Epidemiology of Low Back Pain*" by Mattiuzzi et al, in 2020, incidence, prevalence and disability-adjusted life years, or DALYs, of lower back pain are 245.9 million cases per year (15th worldwide cause), 577.0 million cases (15th worldwide cause) and 64.9 million (6th worldwide cause), respectively. The paper further stated that the risk of lower back pain is marginally higher in women compared to men. Chronic lower back pain is one of the common complaints that may indicate an underlying serious spinal disorder.

These statistics indicate the significant impact degenerative spine disorders can have on patients' lives. These indications are associated with a diverse range of clinical symptoms such as weakness, low extremity pain and back pain, and can result in a significant reduction in the quality of life. The treatments used presently are mainly conservative and palliative and are aimed at returning patients to work. They range from bed rest (no longer recommended) to analgesia, the use of muscle relaxants or injection of corticosteroids, or local anesthetic and manipulation therapies. Various interventions (e.g. intradiscal electrotherapy) are also used, but despite anecdotal statements of success, trials thus far have found their use to be of little direct benefit. Disc degeneration-related pain may also be treated surgically either by artificial disc replacement or by immobilization of the affected vertebrae.

Available Treatments for Degenerative Disc Disease

Most patients suffering from degenerative disc disease, at least initially, show improvement with non-surgical interventions such as physical therapy, core strengthening, and stretching. When those interventions no longer provide relief, patients typically use therapeutics, which include conventional drugs such as opioids, non-steroidal anti-inflammatory drugs, and corticosteroids for pain relief. When these non-surgical therapeutics are no longer effective, patients may undergo surgical treatment, including the use of medical devices or implants, to provide relief.

The original surgical treatment for correcting degenerated disc is either to perform a discectomy or spinal fusion. Discectomy is an appropriate procedure and is routinely performed to remove the degenerated nucleus through a fenestration within the annulus. It allows removal of both the extruded nucleus (herniectomy) and the degenerated remaining inter-vertebral nucleus fragments. Although this procedure is ideal for decompressing and relieving the nervous system (root or cauda equina), it is a poor operation for the spine, due to its resulting disabling condition which leads to a degenerative cascade and may require an additional invasive surgical procedure, like fusion or arthroplasty. Discectomy brings a good short-term effect in relieving radicular pain, but it causes disc height reduction with neuro-foramen stenosis, instability of the treated level, poor result on back pain, and/or complications, such as spinal stenosis or facet pain.

Patients who undergo these procedures are usually on painkillers for weeks and have at least three to six months of recovery time. Therefore, there is a need for a less painful, less invasive and more effective method. The pitfalls of original treatment procedures have led to a search for the development of non-fusion technologies, such as disc or disc nucleus prosthesis. Disc arthroplasty with an artificial disc is an emerging treatment for patients with disc degeneration. Its advantages are to maintain motion, decrease incidence of adjacent segment degeneration, avoid complications related to fusion and allow early return to function. Currently, two kinds of devices are marketed: the total disc replacement and the nuclear replacement. However, both of these devices have major pitfalls.

There has been a growing demand for spinal artificial discs in the market globally. These devices are gaining popularity as they are designed with the intent to provide stabilization and eliminate pain while preserving motion of the functional spinal unit. In July 2021, Aesculap Implant Systems, LLC announced the long-term reporting from its pivotal trial for the activL® Artificial Disc.

Centinel Spine's prodiscL is a Total Disc Replacement, or TDR, technology platform that offers a surgical alternative to fusion to qualified patients suffering from disc degeneration in the cervical and lumbar spine. ProdiscL implants are intended to relieve pain while allowing the potential for motion at the diseased spinal segment.

The activL Artificial Disc for one-level lumbar use is a weight-bearing modular implant consisting of two endplates and one polyethylene inlay and is intended as an alternative to fusion. It's designed to allow controlled motion at the surgery level.

Total disc replacement is a bulky metallic prosthesis designed to replace the entire disc: annulus, nucleus and endplates. These prostheses use an invasive anterior (trans- or retro-peritoneal) approach that requires the presence of a vascular surgeon. Dislodgements, wear debris, degeneration of adjacent intervertebral discs, facet joint arthrosis and subsidence of this type of prosthesis have been reported. The artificial nucleus substitute preserves the remaining disc tissues and their functions. Its design allows its implantation through a posterior approach, but the major limitation of such nucleus prosthesis is that it can be used only in patients in whom disc degeneration is at an early or intermediate stage, because it requires the presence of a competent natural annulus. As a hydrogel-based device, it is fragile, and so does not resist the outstanding biomechanical constraints of the lumbar spine (shear forces). As inert materials, they may lose their mechanical properties over time, and tears and breakages have been reported. Replacing the nucleus only and leaving in place a damaged annulus generates the conditions for implant extrusion or recidivism of discal herniation.

In addition to disc replacements, there are current treatment options for tissue engineering and regenerative medicine, which represent new options for the treatment of degenerative disc disease. A variety of approaches are used to regenerate tissues. These approaches can be categorized into the following three groups:

(i) Biomaterials, without additional cells, that are used to send signals to attract cells and promote regeneration;

(ii) Cells alone may be used, to form a tissue; and

(iii) Cells may be used with a biomaterial scaffold that acts as a frame for developing tissues.

While Autologous Chondrocyte Transplantation, or ACT, has been used for a few years to repair articular cartilage, tissue engineering for disc repair remains in its infancy. Intensive research is currently underway, and animal studies have shown the feasibility of tissue-engineered intervertebral disc. Typically, articular cartilage is a tissue that is not naturally regenerated once damaged. Recently, efforts have been made to reconstruct damaged biological tissues by regenerating a portion of the damaged tissues in laboratories. This approach, defined as “tissue engineering,” has received tremendous attention.

Tissue engineering involves the development of biocompatible materials capable of specifically interacting with biological tissues to produce functional tissue equivalents. Tissue engineering has a basic concept of collecting a desired tissue from a patient, isolating cells from the tissue specimen, proliferating cells, seeding the proliferated cells onto a biodegradable polymeric scaffold, culturing the cells for a predetermined period in vitro, and transplanting back the cell/polymer construct into the patient. More interestingly, recent pilot clinical trials have shown that ACT is an efficient treatment of herniated disc. The main disadvantage of ACT for disc repair is that it requires a disc biopsy. Therefore, there is a need for an improved method to restore disc anatomy and improve its functioning, and there remains a need for an improved method of cartilage repair.

Our Solution

CybroCell™ is an allogeneic fibroblast cell-based therapy for degenerative disc disease This new technology is being designed as an alternative method for repairing the cartilage of the intervertebral disc (or any other articular cartilage). The method is based on using Human Dermal Fibroblasts, or HDFs, which are forced to differentiate into chondrocyte-like cells *in vivo* using the mechanical force and intermittent hydrostatic pressure found in the spine, for chondrogenic differentiation of fibroblasts. We believe our solution will prove superior to existing treatments because it is less invasive, regenerates the disc, restores function and reduces pain, without debilitating long-term effects. We received IND clearance from the FDA on November 7, 2018, with an IND number of 18151. The trial is designed to assess the safety and efficacy of CybroCell™ administered through injection directly into a damaged intervertebral disc. The trial will enroll up to 15 participants with a primary outcome of safety and a secondary outcome of efficacy. Safety will be assessed as the occurrence/frequency of adverse events during the study procedures and for up to 12 months afterwards and will be recorded regardless of severity or relatedness to treatment. Serious adverse events will be documented throughout the 12-month follow-up period. The incidence and nature of adverse events will be tabulated and analyzed at baseline, pre, and post procedure including the three, six, and 12-months evaluations. These include complete physical exam (including vital signs of blood pressure, temperature, and heart rate), laboratory determinations (including urinalysis, hematology, and biochemistry), review of medical history, review of medication history, Dallas pain questionnaire, and patient questionnaire (Oswestry Disability Index). Secondary efficacy outcome will assess subjective and objective parameters at three months, six months, and 12 months post CybroCell™ implantation and compare to those measured at baseline pre-implantation. These parameters will include visual analog scale, patient questionnaire (Oswestry Disability Index), Beck Depression Inventory, Dallas pain questionnaire, range of motion test, and radiological assessment using MRI to evaluate morphological changes to the treated discs.

We are currently in the process of finalizing the experimental cell bank production which will be transferred to a contract development and manufacturing organization, or CDMO, for the manufacturing of the master cell bank and working cell bank per FDA requirements and will submit the necessary documentation to the FDA. Our quotes from the CDMO for carrying out this work have been obtained.

We have completed two animal studies. Sixteen animals were used in the first pilot study (PMID 27853661)[3] with the objective of determining the effects of intradiscal transplantation of neonatal human dermal fibroblasts, or nHDFs, on intravertebral disc, or IVD, degeneration by measuring disc height, magnetic resonance imaging, or MRI, signal intensity, gene expression, and collagen immunostaining. The results indicated that in the nHDF group there was a 10% increase in disk height index after eight weeks of treatment with a p value of <.05, while there was no significant difference in the saline treated group. When compared with the saline treated group, discs treated with nHDFs showed reduced expression of inflammatory markers, a higher ratio of collagen type II over collagen type I gene expression, and more intense immunohistochemical staining for both collagen types I and II. In the second study (PMID 30142460)[4] 38 animals were used with the objective of determining the impact of donor source on the therapeutic effect of dermal fibroblast treatment on disc degeneration and inflammation when comparing rabbit dermal fibroblasts, or RDFs, to nHDFs. Eight weeks after treatment, disc height indexes of discs treated with nHDF increased significantly by 7.8% (p<.01), whereas those treated with saline or RDF increased by 1.5% and 2.0%, respectively. Gene expression analysis showed that discs transplanted with nHDFs and RDFs displayed similar inflammatory responses (p=.2 to .8). Compared to intact discs, expression of both collagen types I and II increased significantly in nHDF-treated discs (p<.05), trending to significant in RDF-treated discs, and not significantly in saline treated discs. The ratio of collagen type II/collagen type I was higher in the IVDs treated with nHDFs (1.26) than those treated with RDFs (0.81) or saline (0.59) and intact discs (1.00). Last, proteoglycan contents increased significantly in discs treated with nHDF (p<.05) and were trending toward significance in the RDF- treated discs compared to those treated with saline. The results from the studies were positive and resulted in “first in human” trial approval. The technology allowed for differentiation of the HDFs into chondrocytes and the cells thrived in the spinal disc environment. The results showed the cells remained in the disc and did not migrate. Further, the cells created a biologic condition which appeared to increase the disc height.

[3] Source: Chee A, Shi P, Cha T, Kao TH, Yang SH, Zhu J, Chen D, Zhang Y, An HS. Cell Therapy with Human Dermal Fibroblasts Enhances Intervertebral Disk Repair and Decreases Inflammation in the Rabbit Model. Global Spine J. 2016 Dec;6(8):771-779. doi: 10.1055/s-0036-1582391. Epub 2016 Apr 13. PMID: 27853661; PMCID: PMC5110358.

[4] Source: Shi P, Chee A, Liu W, Chou PH, Zhu J, An HS. Therapeutic effects of cell therapy with neonatal human dermal fibroblasts and rabbit dermal fibroblasts on disc degeneration and inflammation. Spine J. 2019 Jan;19(1):171-181. doi: 10.1016/j.spinee.2018.08.005. Epub 2018 Aug 22. PMID: 30142460.

Below is a summary of animal study results from Howard An, M.D., Director, Spine Fellowship Program, Rush University Medical College:

Our studies have shown that this biological treatment using human dermal fibroblast cells, has great potential as a cell therapy for disc degeneration. When these cells were injected into a degenerating rabbit disc, they were retained in the disc for up to 8 weeks. Collagen Type II gene expression, a marker for disc repair and regeneration, was higher in the discs treated with human dermal fibroblast cells than those in the control treatment. Also higher in the cell treated discs were the disc heights and cell number. Together, this data suggests that human dermal fibroblast cells are a promising option for cell therapy to restore the biological function and reduce symptoms of intermediate or progressive degenerative discs.

We have received IND clearance from the FDA, conditional upon approval of our master cell bank, to run a Phase 1/2 study for patients suffering from degenerative disc disease and will be conducting this study within the United States. A timeline will be determined through discussions with the FDA.

Market Opportunity

Degenerative disc disease therapeutics represents an approximately $26.0 billion per year market. In addition to therapeutics, degenerative disc disease results in approximately 1.2 million orthopedic surgeries per year, at a cost of approximately $60,000 to $100,000 each, in the United States alone. CybroCell™ could replace therapeutics or defer many of these surgeries if it proves successful in regenerating disc cartilage and alleviating pain.

CYMS101 for Multiple Sclerosis

Multiple Sclerosis

Multiple sclerosis, or MS, has been characterized into four distinct clinical subtypes, differing in the age of onset, aggressiveness and progression of the disease, and frequency of relapses. Most MS cases (85%) follow a relapsing-remitting pattern, or RRMS, with an average relapse every 12 to 18 months in an untreated population, and short-term episodes of neurologic deficits that resolve completely or almost completely. MS relapse is commonly defined as new or worsening symptoms that last 24 hours in duration and occur in the absence of fever or infection. Other patients may transition to a more aggressive disease form known as secondary progressive MS, or will experience steadily progressive neurologic deterioration without relapses, known as primary progressive MS.

There is no primary indicator test for MS, but common testing for suspected MS involves MRI studies, evoked potentials testing, lumbar puncture/spinal tap, and other objective functional tests.

Once a diagnosis of MS has been determined, ongoing periodic disability measurement testing will occur as a standard clinical practice. The first Disability Status Scale was introduced by Kurtzke in 1955 and was later enhanced in 1983 into the Expanded Disability Status Scale, or EDSS. Over time, the EDSS has become the standard against which most MS clinical outcome measures are compared. Eight functional neurological systems are measured by the EDSS including vision, brainstem, pyramidal, cerebellar, sensory, bowel/bladder, mental/cerebral and ambulation (500m walk).

Other disability measurement tests include the Scripps Neurological Rating Scale, which is an overall neurological assessment; the Nine-Hole Pin Test, which measures arm function; and the Timed 25-Foot Walk Test, which measures ambulation function. The RAND 36-Question Health Survey may also be used, which is a general Quality of Life survey utilized by managed care organizations and by Medicare for routine monitoring and assessment of care outcomes in adult patients.

Available Treatments for MS

There is no known cure for MS. Treatments available for MS include steroids for temporary flare-ups, disease-modifying drugs, and drugs that target specific symptoms such as balance, vision, spasticity, sexual dysfunction, and bladder or bowel control. The mechanism of action of current MS disease-modifying drugs is to block the host's immune-mediated attacks on the nerves to inhibit or minimize the progressive destruction of myelin. While these drugs may reduce the frequency of exacerbations and slow the disease progression from inducing further nerve damage, there is no myelin or nerve regenerative capability in any of them to restore the cumulative damage already in place. Additionally, as the disease progresses further, the ability for any of these drugs to effectively block immune-mediated myelin or nerve destruction becomes more blunted. Most MS drugs come with identified risks and side effects, including "black box" warnings.

Key companies providing existing MS treatments include:

- Biogen, Inc.: Strong presence in the global market coupled with a diverse portfolio of MS drugs;
- F. Hoffmann-La Roche Ltd (commonly known as Roche): Strong focus on research and development activities to develop novel medicine for MS treatment; and
- Novartis AG: Increased focus on investment in research and development of innovative molecules.

New Treatments Being Developed

Research and development in the neurological therapy area has always been active. Various novel molecules are being investigated for the treatment of MS. Some of the key pharmaceutical players are emphasizing the improvement of the disabilities associated with MS. The pipeline portfolios of various companies include agents with different mechanisms of action, which are expected to boost their demand from physicians, aiming to change the treatment algorithm in the coming years.

For a decade, various companies such as Sanofi, Johnson & Johnson, and Novartis AG, among others, have been investing in the treatment for MS to bring novel therapeutics with high efficacy and potency for patients. These companies have recently launched therapeutics intended for the most prevalent form of MS. In August 2020, the FDA approved Novartis AG's Kesimpta, the only self-administered, targeted B-cell therapy for patients with relapsing MS, and in March 2021, Johnson & Johnson received FDA approval for the launch of Ponvory as a daily oral drug for treatment against MS.

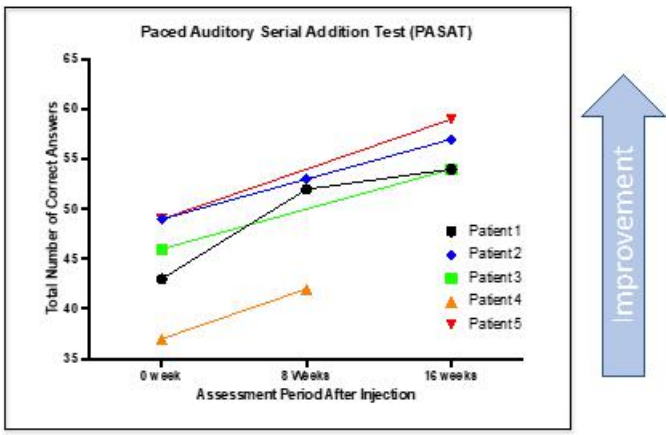
The cost, outcome and quality of drugs approved is a priority of physicians as well as patients. Physicians play an important role in developing an interdisciplinary approach for the management of MS, which is a key cause for manufacturers to focus on novel molecules with different mechanisms of action. For instance, TG Therapeutics, Inc.'s ublituximab was recently approved by the FDA for the treatment of relapsing forms of MS, to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.

The approval and commercialization of these recently approved drugs for the treatment of symptoms associated with MS is expected to boost the MS drug market growth globally in the near future.

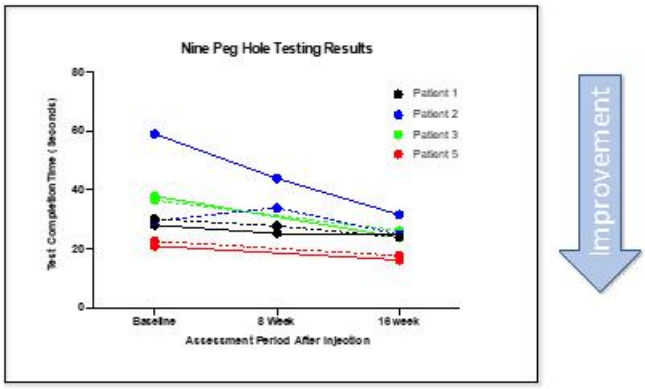
Our Solution

We are developing CYMS101 as an allogeneic fibroblast cell-based therapy to treat MS. After completing animal studies using CYMS101 (allogeneic fibroblast cells), we received approval from Mexico for the conduct of clinical investigations using the fibroblast cell composition for patients with MS, and have completed the Phase 1 study called "*Feasibility Study of Tolerogenic Fibroblasts in Patients with Refractory Multiple Sclerosis*." The study was conducted in five participants. The primary objective of the study was to assess safety, and the secondary objective was to assess efficacy. The results of the study for safety were no adverse effects during intravenous injection of the tolerogenic fibroblasts, no short or long-impact in complete blood count test during the 16-week monitoring period, and no short or long impact in electrocardiogram results during the 16-week monitoring period. In addition, the results of the study for efficacy included:

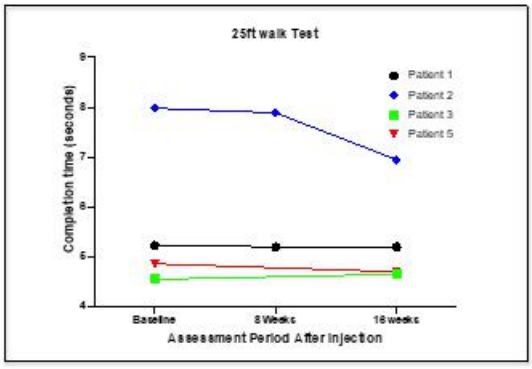
- Paced Auditory Serial Addition Test (PASAT). The test was developed by Gronwell in 1977 and later adapted by Rao in 1989 for use in MS. The test is a measure of cognitive function that assesses auditory information processing speed as well as calculation ability. In the test, single digits are presented every 3 seconds and the patient must add each new digit to the one immediately prior to it. Scoring is the total number of correct responses out of 60 possible. There was a general improvement in PASAT score for all patients during the 16-week monitoring period.



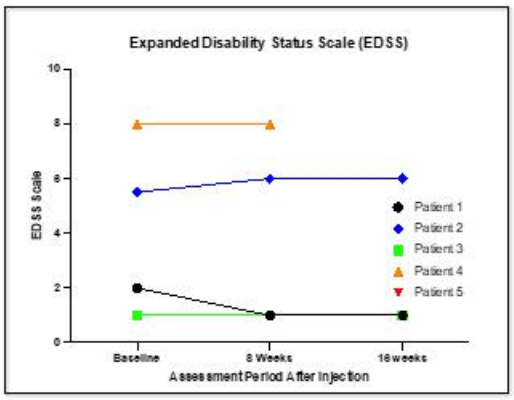
- Nine-Hole Peg Test. This is a standardized quantitative test of upper extremity function. The test is the most frequently used measure of upper extremity function in MS. In the test, dominant and non-dominant hands are tested twice. In the test, pegs are picked up one at a time and placed in one of nine holes. Once all nine pegs are placed, the patient then removes the pegs one at a time and places them back in the container. Scoring is the time required to place pegs in holes and then remove the pegs from holes. General improvement of Nine-Hole Peg Test completion time for all patients during the 16-week testing period was noted.



- Timed 25-Foot Walk Test. The test is a quantitative mobility and leg function performance test. In the test, the patient is instructed to walk a 25 feet long path quickly but safely. The test is administered again by having the patient walk back the same distance. The score of the test is the average time of the two completed walks. No general improvement or deterioration was noted with the Timed 25-Foot Walk Test.



- Expanded Disability Status Scale (EDSS). The test is used to quantify disability in MS and monitor changes in the level of disability over time. EDSS is widely used in clinical trials for assessment of participants with MS. The scale is based on neurological examination and impact on functional systems representing the network of neurons in the brain. EDSS scoring can vary widely due to complex scoring rules and subjective nature of the neurological testing. No general improvement or deterioration was noted with EDSS test, and no patient exhibited further deterioration during the study.



Although determining the mode of action is not necessary for filing for FDA approval (Brown and Wobst, 2020), and to date between 10-20% of approved drugs have no known mode of action determined (Moffat et al., 2017), we are currently conducting further research to determine the mode of action of fibroblasts in oligodendrocyte expansion. We will file an IND application for a Phase 2 clinical trial in MS in the United States. While determining the mode of action will be optimal, having a general sense of possible mode of action will have a tangible benefit in the development, optimization and mitigation of possible side-effects. We will likely seek a strategic partner to collaborate with us on the development of CYMS101 either before initiating the Phase 2 study, or after its completion, if successful, and prior to commencing with a Phase 3 clinical trial.

Market Opportunity

The MS drug market's annual revenue is presently approximately $24.0 billion globally, with 48% of the revenues generated in the United States. The key companies in this market include Biogen Inc., F. Hoffmann-La Roche Ltd,, Sanofi, and Novartis AG. While there are more than 20 approved treatments, most of them have serious adverse effects and there are presently no cures. Both private and public organizations are increasing their investments in search of better treatments for this complex disease, including treatments that restore lost function, and government initiatives to improve access to MS drugs in developing economies are another driver of future growth in the MS market.

CYWC628 for Wound Healing

Wound Care/Healing

A chronic wound is one that is usually arrested in the inflammatory stage and cannot progress to the proliferative and remodeling phase of healing. Proinflammatory cytokines produced by necrotic tissue, foreign material and bacteria allow the inflammatory stage to continue. In addition, changes in the cellular deoxyribonucleic acid, or DNA, synthesis leads to increased formation of metalloproteases that impede the body's attempt to heal by overwhelming the building blocks—chemotactant factors, growth factors and mitogens—needed for normal wound healing. Fibroblasts, an essential cell in the wound healing process, is epigenetically altered in the setting of chronic wounds so that their ability to replicate as well as produce the necessary building blocks for the formation of granulation tissue is altered. Further, the keratinocytes at the periphery of the wounds are phenotypically different so that while being able to proliferate, they cannot fully differentiate into migrating keratinocytes. This explains the epithelial build up often seen around the edge of the wound.

Diabetic foot ulcers are the most prominent type of chronic wounds. The rising prevalence of chronic diseases globally, is leading to increased incidence of chronic wounds, including diabetic foot ulcers, pressure ulcers and venous leg ulcers. These chronic wounds, especially late-stage "hard-to-heal ulcers," exert a huge economic cost burden on healthcare agencies globally. Furthermore, over 50% of diabetic foot ulcers become infected, which raises the risk of hospitalization, amputation and death.

Available Wound Care Treatments

Several treatments are presently available for treatment of chronic wounds, including Apligraf, Grafix, DermACELL and TheraSkin. Apligraf is comprised of neonatal keratinocytes, and neonatal fibroblasts within a bovine collagen matrix, and may be used to treat venous leg ulcers and diabetic foot ulcers. Grafix is a cryopreserved human placental membrane that may be used as a wound cover, wrap and/or barrier to treat acute and chronic wounds, diabetic ulcers, pressure injuries, surgical wounds, burns and venous ulcers. DermACELL is a technologically advanced dermal matrix comprised of intact cellular matrix that has at least 97% of DNA removed and may be used in the treatment of chronic wounds such as diabetic foot ulcers. TheraSkin is a cryopreserved human skin allograft with both epidermis and dermis layers that may be used to promote wound healing.

New Treatments Being Developed

Increasing application of bioactive therapies like skin grafting and growth factors in urgent treatment of wounds like diabetic foot ulcers is resulting in high investment of market players in research and development of these therapies. Accordingly, the rise in adoption rate of advance bioactive therapies for rapid wound healing is expected to propel the growth of wound care market. For example, in February 2021, Axio Biosolutions Private Limited received CE mark from Europe for its MaxioCel advanced wound care product. The bioactive microfiber gelling technology helps wounds heal quickly.

Distinct clinical benefits offered by negative pressure wound therapy, or NPWT, coupled with introduction of new advanced features such as single use and portability, among others, for effective wound care is boosting the demand for NPWT devices from healthcare professionals globally. In January 2021, Smith & Nephew plc published that its PICO single-use negative pressure wound therapy system significantly reduced surgical site infections by 63.0% and the dehiscence by 30.0%. In January 2019, Applied Tissue Technologies LLC received FDA approval for its Platform Wound Dressing, NPWT device that eliminates the use of foam or gauze dressings. In April 2019, PolarityTE, Inc. launched clinical trials for its SkinTE regenerative tissue product for chronic wounds. The trials will evaluate SkinTE's effectiveness in treating diabetic foot ulcers and venous leg ulcers.

Moreover, new players are entering the wound care market by focusing on allograft, xenograft, nanofibre, dermal substitutes and cell-based therapies to cater the unmet needs and growing demand for urgent and effective treatment among patients.

Our Solution

We are in the early stages of developing CYWC628 as an allogeneic fibroblast cell-based therapy for wound healing. Our studies are presently focused on utilizing fibroblasts and fibroblast-derived cells to treat wounds in diabetic mice and rats. Based upon our results achieved to date, we plan to pursue an IND submission with the FDA for wound healing as early as 2024.

Market Opportunity

The wound care market size was valued at approximately $17.0 billion globally in 2021, with more than half of the revenue generated in the United States and Europe, and, according to Fortune Business Insights published in March 2022, was projected to grow to approximately $28.0 billion by 2029. The rising prevalence of chronic diseases globally is leading to increased incidence of chronic wounds, including diabetic foot ulcers, pressure ulcers and venous leg ulcers. The huge economic cost burden exerted by chronic and acute wounds has led to an increase in initiatives being undertaken by governments globally, to create awareness among the general population for early diagnosis of wounds. These initiatives, along with improving reimbursement policies for wound care in these countries, are anticipated to drive the adoption of wound care products and lead to continued growth in this market.

Our Early-Stage Research

CYTER915 for Extension of Life

Extension of Life

Fibroblasts are no longer considered as mere structural components of organs but as dynamic participants in immune processes. Fibroblasts produce an environment that influences regulatory T cell migration, proliferation and activity, to ensure immunotolerance.

One of the key organs of the immune system is the thymus. It serves a vital role in T cell maturation and selection, elimination of self-reactive cells, establishment of central tolerance and T cell migration to recognize a wide range of pathogens. A variety of cells have been identified inside the thymus. These include epithelial cells, thymocytes, dendritic cells, or DC, macrophages, B lymphocytes, myoid cells, endothelial cells and fibroblasts. With age, the thymus declines in functionality through a process referred to as thymus or thymic involution. Publications have indicated that the process of involution enhances regulatory T cell generation which leads to increased susceptibility to pathogen infections, tumors and autoimmune diseases.

The thymus is critically important to the immune system, which serves as the body's defense mechanism providing surveillance and protection against diverse pathogens, tumors, antigens and mediators of tissue damage. The immune system comprises a complex network of cellular and molecular components subdivided into thymus-independent (innate) and thymus-dependent (adaptive) arms which function synergistically in all immune responses. Innate immunity constitutes the first line of defense and is mediated by innate immune cells such as tissue macrophages, DC and granulocytes which elicit their effector function within minutes to hours following antigen exposure. Innate cells become activated via germ-line encoded pattern recognition receptors, including toll like receptors and nucleotide oligomerization domain-like receptors, which recognize invariant features of pathogens (pathogen-associate molecular patterns) and tissue damage.

Once activated, innate cells such as macrophages and neutrophils can effectively clear antigens via phagocytosis. Other types of innate cells, such as DC, take up and process antigens, resulting in expression of antigenic epitopes in conjunction with their major histocompatibility complex, or MHC, or human leukocyte antigen molecules. These DC can then serve as antigen-presenting cells for the priming of the adaptive immune system. In this way, the early innate response is coupled to, and facilitates, adaptive immunity.

The adaptive immune system consists of T and B lymphocytes which express specific antigen recognition receptors and develop highly specialized effector functions with the ability to form long-term immunological memory. Both B cells and T cells develop from bone marrow-derived progenitors; while mature B cells are exported to the periphery directly from the bone marrow, T cell development, maturation and export require critical differentiation steps to occur in the thymus. Thymus-dependent T cell differentiation processes include expression of an antigen-specific cell surface T cell receptor through recombination of germline-encoded gene segments, and thymic "education" involving negative selection of potentially self-reactive T cells and positive selection of T cells with the capacity to recognize antigens encountered in the periphery. These important thymic processes ensure that T cells can recognize antigens in the context of self-MHC, but do not elicit self-reactivity.

The spleen is one of the key secondary lymphoid organs responsible for the rapid response of the immune system to pathogens in the blood, and to maintain a long-term adaptive response to such pathogens. The spleen also serves as the key organ for iron metabolism and erythrocyte homeostasis. The organ also functions as a key storage site for platelets and leukocytes. A variety of cells have been identified in the spleen, including endothelia cells, mesothelial cells, reticular cells, erythrocytes, granulocytes, mononuclear cells, hemopoietic cells, macrophages, dendritic cells, plasma cells, CD4+ and CD8+ T cells, and migrating B cells. With age, the structure and function of the spleen changes, leading to decreased ability to respond positively to vaccination, increased susceptibility to viral and bacterial pathogen infections, and increased incidence of autoimmune disease. Accordingly, there is a need for improving and extending the productive life of the thymus and spleen through cell therapy, which could lead to an extension of human life by defeating the diseases that are allowed to proliferate during the declining process of these vital glands.

Our Solution

Our research program is in the early stages and is being designed to regenerate or reinvigorate production of the thymus and/or spleen. The regeneration comprises organogenesis and/or T cell development, wherein the tissue is differentiated and/or expansion of epithelial cells uses activated or inactivated fibroblasts. In addition to fibroblasts, we anticipate using other agents such as nucleic acids, cytokines, chemokines, transcription factors, epigenetic factors, growth factors, hormones or a combination thereof. The population of cells may be activated *in vitro* or *ex vivo*. The next step in developing fibroblasts for thymic or splenic involution reversal will be to design and conduct preclinical studies to demonstrate whether thymic or splenic involution reversal can be achieved in animal models.

Market Opportunity

The global anti-aging therapeutics market was estimated to have exceeded $500.0 million in 2021 and is expected to experience annual double-digit growth over the next ten years as aging populations and standards of living are increasing globally. The demand for effective regenerative medicine solutions for the aging population is higher than ever. As a result, anti-aging therapeutics are being developed by several companies using stem cells and regenerative medicine to identify, prevent, cure, and reverse age-related dysfunctions, illnesses, and diseases.

TCB190 for the Treatment of Certain Cancers

Our research on certain cancers is just beginning and further information about the opportunity will be released as it becomes available.

Manufacturing and Supply

We currently produce our cell therapy product candidates at our laboratory facility in Houston, Texas. We are in the process of contracting with a CDMO for the transfer of our experimental cell bank to produce our master cell bank, working cell bank and our fibroblast cell-based product candidate to enable clinical trials. If our product candidates receive marketing approval, we will evaluate the longer-term feasibility of building our own cGMP manufacturing facility or continuing to outsource production to a CDMO for clinical testing and commercial supply. We presently rely on third parties for certain portions of the cell therapy manufacturing process and will likely continue to do so in the future.

Intellectual Property

We were formed in April 2021 as a spinout from FibroGenesis. In connection with our formation, we issued the equivalent of 8,750,000 shares of Series A Preferred Stock to FibroGenesis in exchange for a patent assignment agreement, or the Patent Assignment Agreement, and an intellectual property cross-license agreement, or the Intellectual Property Cross-License Agreement. The Patent Assignment Agreement transfers all right, title and interest to certain patents/applications from FibroGenesis to us, and the Intellectual Property Cross-License Agreement allocates between FibroGenesis and us, exclusive fields of use for both assigned and retained patents issued/pending.

Through the Patent Assignment Agreement and the Intellectual Property Cross-License Agreement, FibroGenesis has effectively granted to us exclusive rights to develop fibroblasts in the following fields of use:

- diagnosis, treatment, prevention and palliation of spinal diseases, disorders or conditions;
- certain cancers;
- orthopedic diseases, disorders or conditions; and
- multiple sclerosis.

FibroGenesis has retained exclusive rights for all other fields of use for both issued patents and patent applications transferred to us or retained by FibroGenesis.

The issued patents and patent applications assigned to us, along with additional patent applications filed independently by us after inception, include, as of the date hereof, a total of 48 patents and 109 patent applications pending. Our patent protections for our issued patents generally expire in years ranging from 2027 to 2043.

All of our issued patents are covered by the Patent Assignment Agreement and consist of 10 issued patents in the United States, eight issued patents in Australia, four issued patents in Japan, four issued patents in the United Kingdom, three issued patents in France, three issued patents in Germany, three issued patents in Italy, three issued patents in Spain, three issued patents in Hong Kong, two issued patents in Canada, two issued patents in China, two issued patents in Switzerland, and the remaining issued patent in Europe. One of our issued patents is also covered by the Intellectual Property Cross-License Agreement, which patent was issued in the United States.

Given present patent ineligibility laws concerning products of nature, there are presently no composition of matter patents covering CybroCell™, although there are patents related to the production of CybroCell™. We currently have patent applications pending for composition of matter for both CYMS101 and CYWC628.

In addition to patents, we rely on trade secrets and know-how to develop and maintain our competitive position. We typically rely on trade secrets to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection. We protect trade secrets and know-how by establishing confidentiality agreements and invention assignment agreements with our employees, consultants, scientific advisors, contractors and partners. These agreements generally provide that all confidential information developed or made known during the course of an individual or entity's relationship with us must be kept confidential during and after the relationship. These agreements also generally provide that all inventions resulting from work performed for us or relating to our business and conceived or completed during the period of employment or assignment, as applicable, shall be our exclusive property. In addition, we take other appropriate precautions, such as physical and technological security measures, to guard against misappropriation of our property.

Competition

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary and novel products and product candidates. Our competitors have developed, are developing or may develop products, product candidates and processes competitive with our product candidates. Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future. We believe that a significant number of products are currently under development, and may become commercially available in the future, for the treatment of conditions for which we may attempt to develop product candidates. In addition, our products may need to compete with off-label drugs used by physicians to treat the indications for which we seek approval. This may make it difficult for us to replace existing therapies with our products.

We are developing CybroCell™ for the treatment of degenerative disc disease. Our competitors in the market for degenerative disc disease include Aesculap Implant Systems, LLC, Novartis AG, Pfizer Inc., Eli Lilly and Company, DiscGenics, Inc., Spine BioPharma, Inc. and Ferring B.V. In July 2021, Aesculap Implant Systems, LLC announced the long-term reporting from its pivotal trial for the activl® Artificial Disc.

We are developing CYMS101 as an allogeneic fibroblast cell-based therapy to treat MS. Key companies currently providing MS treatments include Biogen, Inc., F. Hoffmann-La Roche Ltd and Novartis AG. Various companies, such as Sanofi and Novartis AG, have been investing in the treatment for MS to bring novel therapeutics with high efficacy and potency for patients. These companies have recently launched therapeutics intended for the most prevalent form of MS. In August 2020, the FDA approved Novartis AG's Kesimpta, the only self-administered, targeted B-cell therapy for patients with relapsing MS, and in March 2021, Johnson & Johnson received FDA approval for the launch of Ponvory as a daily oral drug for treatment against MS. TG Therapeutics, Inc.'s ublituximab for the indication of RMS was also recently approved by the FDA for treatment of MS.

We are in the early stages of developing CYWC628 as an allogeneic fibroblast cell-based therapy for wound healing. We face competition from several treatments presently available for treatment of chronic wounds, including Apligraf, Grafix, DermACELL and TheraSkin. In addition, increasing application of bioactive therapies like skin grafting and growth factors in urgent treatment of wounds like diabetic foot ulcers is resulting in high investment by companies in research and development of these therapies. In January 2019, Applied Tissue Technologies LLC received FDA approval for its Platform Wound Dressing, NPWT device that eliminates the use of foam or gauze dressings. In April 2019, PolarityTE, Inc. launched clinical trials for its SkinTE regenerative tissue product for chronic wounds. In January 2021, Smith & Nephew plc published that its PICO single-use negative pressure wound therapy system significantly reduced surgical site infections by 63.0% and the dehiscence by 30.0%, and in February 2021, Axio Biosolutions Private Limited received CE mark from Europe for its MaxioCel advanced wound care product, a bioactive microfiber gelling technology which helps wounds heal quickly.

Many of our current and potential competitors may have significantly greater financial, manufacturing, marketing, drug development, technical and human resources and commercial expertise than we do. Large pharmaceutical and biotechnology companies, in particular, have extensive experience in clinical testing, obtaining regulatory approvals, recruiting patients and manufacturing biotechnology products. These companies also have significantly greater research and marketing capabilities than we do and may also have products that have been approved or are in late stages of development, and collaborative arrangements in our target markets with leading companies and research institutions. Established pharmaceutical and biotechnology companies may also invest heavily to accelerate discovery and development of novel compounds or to in-license novel compounds that could make the product candidates that we develop obsolete. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated among a smaller number of competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies, as well as in acquiring technologies complementary to, or necessary for, our programs. As a result, our competitors may succeed in obtaining approval from the FDA, the EMA or other comparable foreign regulatory authorities or in discovering, developing and commercializing products in our field before we do. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe effects, are more convenient, have a broader label, are marketed more effectively, are reimbursed or are less expensive than any products that we may develop. Technological advances or products developed by our competitors may render our technologies or product candidates obsolete, less competitive or not economical. If we are unable to compete effectively, our opportunity to generate revenue from the sale of any products we may develop, if approved, could be adversely affected.

Regulatory Environment

Government Regulation and Product Approval

The FDA and comparable regulatory authorities in state and local jurisdictions and in other countries and jurisdictions impose substantial and burdensome requirements upon companies involved in the clinical development, manufacture, marketing and distribution of products such as those we are developing. These entities regulate, among other things, the research, development, testing, manufacture, quality control, packaging, safety, effectiveness, labeling, storage, record keeping, approval, advertising, promotion, distribution, post-approval monitoring and reporting, sampling, export and import of our product candidates. Any product candidates that we develop must be approved by the FDA before they may be legally marketed in the United States and by the appropriate foreign regulatory agency before they may be legally marketed in those foreign countries. Generally, our activities in other countries will be subject to regulation that is similar in nature and scope as that imposed in the United States, although there can be important differences.

U.S. Product Development Process

In the United States, the FDA regulates drugs under the U.S. Federal Food, Drug, and Cosmetic Act, or the FDCA, and biologics under the FDCA and the Public Health Service Act and their implementing regulations. The processes for obtaining regulatory approvals in the United States and in foreign countries and jurisdictions, along with subsequent compliance with applicable statutes and regulations, require the expenditure of substantial time and financial resources. The failure to comply with applicable U.S. requirements at any time during the product development process, approval process or after approval may subject an applicant and/or sponsor to a variety of administrative or judicial sanctions, including refusal by the FDA to approve pending applications, withdrawal of an approval, imposition of a clinical hold, issuance of warning letters and other types of letters, product seizures, total or partial suspension of production or distribution, injunctions, fines, refusals of government contracts, restitution, disgorgement of profits, or civil or criminal investigations and penalties brought by the FDA and the U.S. Department of Justice or other governmental entities. In addition, an applicant may need to recall a product. Additionally, certain of our product candidates are subject to regulation in the United States as a combination product. If marketed individually, each component would be subject to different regulatory pathways and would require approval of independent marketing applications by the FDA. A combination product, however, is assigned to a center within the FDA that will have primary jurisdiction over its regulation based on a determination of the combination product's primary mode of action, which is the single mode of action that provides the most important therapeutic action. In the case of our CybroCell™ product candidate, we believe that the primary mode of action is attributable to the biologic component of the product. We expect to seek approval of this combination product candidate through a BLA, and we do not expect that the FDA will require a separate marketing authorization for each of the drug and biologic constituents of the product.

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

- completion of nonclinical or preclinical laboratory tests, animal studies and formulation studies in accordance with the FDA's good laboratory practice, or GLP, requirements and other applicable regulations;
- submission to the FDA of an IND, which must become effective before human clinical trials may begin;
- approval by an IRB or ethics committee at each clinical site before each trial may be initiated;
- performance of adequate and well-controlled human clinical trials in accordance with GCP requirements to establish the safety and efficacy of the proposed drug for its intended use, or with respect to biologics, the safety, purity and potency of the product candidate for each proposed indication;
- submission to the FDA of an NDA or BLA after completion of all pivotal trials;
- a determination by the FDA within 60 days of its receipt of an NDA or BLA to file the application for review;
- satisfactory completion of an FDA advisory committee review, if applicable;
- satisfactory completion of one or more FDA inspections of the manufacturing facility or facilities at which the product, or components thereof, are produced to assess compliance with cGMP requirements to assure that the facilities, methods and controls are adequate to preserve the drug's identity, strength, quality and purity, and of selected clinical investigation sites to assess compliance with GCPs;
- a potential FDA audit of the preclinical and/or clinical trial sites that generated the data in support of the NDA or BLA; and
- the FDA's review and approval of the NDA or BLA to permit commercial marketing of the product for particular indications for use in the United States.

Preclinical studies include laboratory evaluation of product chemistry, toxicity and formulation, as well as in vitro and animal studies to assess potential safety and efficacy. The conduct of preclinical studies is subject to federal regulations and requirements, including GLP regulations for safety/toxicology studies.

Prior to beginning the first clinical trial with a product candidate in the United States, we must submit an IND to the FDA. An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for clinical trials. Some preclinical studies may continue even after the IND is submitted. The IND also includes results of animal and *in vitro* studies assessing the toxicology, pharmacokinetics, pharmacology, and pharmacodynamic characteristics of the product; chemistry, manufacturing, and controls information; and any available human data or literature to support the use of the investigational product. An IND must become effective before human clinical trials may begin. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, raises safety concerns or questions about the proposed clinical trial. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial.

In addition to the submission of an IND to the FDA before initiation of a clinical trial in the United States, certain human clinical trials involving recombinant or synthetic nucleic acid molecules are subject to oversight at the local level as set forth in the NIH Guidelines. Specifically, under the NIH Guidelines, supervision of human gene transfer trials includes evaluation and assessment by an Institutional Biosafety Committee, or IBC, a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding of recombinant or synthetic nucleic acid molecule research, many companies, and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCP requirements, which include the requirement that all research subjects, or their legal representative, provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the inclusion and exclusion criteria, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site and must monitor the study until completed. An IRB is charged with protecting the welfare and rights of trial participants and considers such items as whether the risks to individuals participating in the clinical trials are minimized and are reasonable in relation to anticipated benefits. Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some clinical trials also include oversight by an independent group of qualified experts organized by the clinical trial sponsor, known as a data safety monitoring board or committee, which provides authorization for whether or not a trial may move forward at designated check points based on access to certain data from the trial and may recommend that the clinical trial be halted if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing clinical trials and clinical trial results to public registries.

Human clinical trials are typically conducted in three sequential phases that may overlap or be combined:

- ***Phase 1***: The product candidate is initially introduced into healthy human subjects or, in certain cases such as certain cancers, patients with the target disease or condition. These trials are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness. In the case of some products for severe or life-threatening diseases, such as certain cancers, especially when the product may be too inherently toxic to ethically administer to healthy volunteers, the initial human testing is often conducted in patients.

- ***Phase 2***: The product candidate is administered to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosages, dose tolerance and dosing schedule and to identify possible adverse side effects and safety risks. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.

- ***Phase 3***: The product candidate is administered to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for physician labelling. Generally, two adequate and well-controlled Phase 3 clinical trials are required by the FDA for approval of an NDA or BLA.

Post-marketing studies, sometimes referred to as Phase 4 clinical trials, may be conducted after initial marketing approval. These clinical trials are used to gain additional experience from the treatment of patients in the intended therapeutic indication. In certain instances, such as with accelerated approval drugs, the FDA may mandate the performance of Phase 4 clinical trials as a condition of approval.

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 2 clinical trials or before an NDA or BLA 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 meetings at the end of a Phase 2 clinical trial to discuss the clinical trial's results and present plans for a pivotal Phase 3 clinical trial that they believe will support approval of their new drug.

Concurrent with clinical trials, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the drug and finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, the manufacturer must develop methods for testing the identity, strength, quality and purity of the final product. In addition, 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.

While the IND is active and before product approval, progress reports summarizing the results of the clinical trials and nonclinical studies performed since the last progress report must be submitted at least annually to the FDA, and written IND safety reports must be submitted to the FDA and investigators for serious and unexpected suspected adverse events, findings from other studies suggesting a significant risk to humans exposed to the same or similar drugs, findings from animal or in vitro testing suggesting a significant risk to humans, and any clinically important increased incidence of a serious suspected adverse reaction compared to that listed in the protocol or investigator brochure. The sponsor must submit an IND safety report within 15 calendar days after the sponsor determines that the information qualifies for reporting. The sponsor also must notify the FDA of any unexpected fatal or life-threatening suspected adverse reaction within seven calendar days after the sponsor's initial receipt of the information.

U.S. Review and Approval Process

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, preclinical and other nonclinical 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 or BLA requesting approval to market the product. Data may come from company-sponsored clinical trials intended to test the safety and effectiveness of the use of a product, or from a number of alternative sources, including studies initiated by investigators. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety and effectiveness of the investigational drug product to the satisfaction of the FDA. The submission of an NDA or BLA is subject to the payment of substantial user fees; a waiver of such fees may be obtained under certain limited circumstances. Additionally, no user fees are assessed on NDAs or BLAs for products designated as orphan drugs, unless the product also includes a non-orphan indication.

The FDA reviews an NDA or BLA to determine, among other things, whether a product is safe and effective for its intended use and whether its manufacturing is cGMP-compliant to assure and preserve the product's identity, strength, quality and purity. Under the Prescription Drug User Fee Act, or PDUFA, guidelines that are currently in effect, the FDA has a goal of ten months from the date of "filing" of a standard NDA for a new molecular entity or BLA to review and act on the submission. This review typically takes twelve months from the date the NDA or BLA is submitted to the FDA because the FDA has approximately two months to make a "filing" decision after the application is submitted. The FDA conducts a preliminary review of all NDAs or BLAs within the first 60 days after submission, before accepting them for filing, to determine whether they are sufficiently complete to permit substantive review. The FDA may request additional information rather than accept an NDA or BLA for filing. In this event, the NDA or BLA must be resubmitted with the additional information. The resubmitted application also is subject to review before the FDA accepts it for filing.

The FDA may refer an application for a novel drug to an advisory committee. An advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

Before approving an NDA or BLA, the FDA will typically inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP and adequate to assure consistent production of the product within required specifications. Additionally, before approving an NDA or BLA, the FDA will typically inspect one or more clinical sites to assure compliance with GCPs. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

After the FDA evaluates an NDA or BLA, it may issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the drug with prescribing information for specific indications. A Complete Response Letter indicates that the review cycle of the application is complete, and the application will not be approved in its present form. A Complete Response Letter usually describes the specific deficiencies in the NDA or BLA identified by the FDA and may require additional clinical data, such as an additional pivotal Phase 3 clinical trial or other significant and time-consuming requirements related to clinical trials, nonclinical studies or manufacturing. If a Complete Response Letter is issued, the sponsor must resubmit the NDA or BLA, addressing all of the deficiencies identified in the letter, or withdraw the application. Even if such data and information are submitted, the FDA may decide that the NDA or BLA does not satisfy the criteria for approval.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may contain limitations on the indicated uses for which such product may be marketed. For example, the FDA may approve the NDA or BLA with a REMS to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a medicine and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries, and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may also require one or more post-marketing studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization, and may limit further marketing of the product based on the results of these post-marketing studies. In addition, new government requirements, including those resulting from new legislation, may be established, or the FDA's policies may change, which could impact the timeline for regulatory approval or otherwise impact ongoing development programs.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug intended to treat a rare disease or condition, which is a 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, there is no reasonable expectation that the cost of developing and making a drug product available in the United States for this type of disease or condition will be recovered from sales of the product. Orphan designation must be requested before submitting an NDA or BLA. After the FDA grants orphan designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Orphan designation does not convey any advantage in or shorten the duration of the regulatory review and approval process. Orphan designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers.

If a product that has orphan designation subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications to market the same drug or biological product for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan exclusivity. Competitors, however, may receive approval of different products for the indication for which the orphan product has exclusivity or obtain approval for the same product but for a different indication for which the orphan product has exclusivity. Orphan exclusivity also could block the approval of one of our products for seven years if a competitor obtains approval of the same drug as defined by the FDA or if our product candidate is determined to be contained within the competitor's product for the same indication or disease. If an orphan designated product receives marketing approval for an indication broader than what is designated, it may not be entitled to orphan exclusivity. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Expedited Development and Review Programs

The FDA has a number of programs intended to expedite the development or review of products that meet certain criteria. For example, new drugs are eligible for Fast Track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast track designation applies to the combination of the product and the specific indication for which it is being studied. The sponsor of a fast track product has opportunities for more frequent interactions with the review team during product development, and the FDA may consider for review sections of the NDA or BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the NDA or BLA, the FDA agrees to accept sections of the NDA or BLA and determines that the schedule is acceptable, and the sponsor pays any required user fee upon submission of the first section of the NDA or BLA.

A product, including a product with a Fast Track designation, may also be eligible for other types of FDA programs intended to expedite development and review, such as priority review and accelerated approval. A product is eligible for priority review if it has the potential to provide safe and effective therapy where no satisfactory alternative therapy exists or a significant improvement in the treatment, diagnosis or prevention of a disease compared to marketed products. The FDA will attempt to direct additional resources to the evaluation of an application for a new drug designated for priority review in an effort to facilitate the review. The FDA endeavors to review applications with priority review designations within six months of the filing date as compared to ten months for review of standard NDAs or BLAs under its current PDUFA review goals.

In addition, a product may be eligible for accelerated approval. Products intended to treat serious or life-threatening diseases or conditions may be eligible for accelerated approval upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity or prevalence of the condition and the availability or lack of alternative treatments. As a condition of approval, the FDA may require that a sponsor of a drug receiving accelerated approval perform adequate and well-controlled post-marketing clinical trials. In addition, the FDA currently requires pre-approval of promotional materials as a condition for accelerated approval, which could adversely impact the timing of the commercial launch of the product.

A product candidate intended to treat a serious or life-threatening disease or condition may also be eligible for breakthrough therapy designation to expedite its development and review. A product can receive breakthrough therapy designation if preliminary clinical evidence indicates that the product, alone or in combination with one or more other drugs or biologics, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation includes all of the fast track program features, as well as more intensive FDA interaction and guidance beginning as early as Phase 1 and an organizational commitment to expedite the development and review of the product candidate, including involvement of senior managers.

In addition, the FDA may designate a product as a regenerative medicine advanced therapy, or RMAT. The RMAT designation is intended to facilitate an efficient development program for, and expedited review of, any product candidate that meets the following criteria: (i) the product candidate qualifies as a RMAT, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, with limited exceptions; (ii) the product candidate is intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition; and (iii) preliminary clinical evidence indicates that the product candidate has the potential to address unmet medical needs for such a disease or condition. RMAT designation provides potential benefits that include more frequent meetings with the FDA to discuss the development plan for the product candidate, and eligibility for rolling review and priority review of BLAs. Cell therapy candidates granted RMAT designation may also be eligible for accelerated approval on the basis of a surrogate or intermediate endpoint reasonably likely to predict long-term clinical benefit, or reliance upon data obtained from a meaningful number of sites, including through expansion to additional sites, as appropriate. RMAT-designated cell therapy candidates that receive accelerated approval may, as appropriate, fulfill their post-approval requirements through the completion of clinical trials, patient registries, or through submission of other sources of real world evidence, such as electronic health records, through the collection of larger confirmatory data sets, or via post-approval monitoring of all patients treated with such therapy prior to approval of the therapy.

Fast track designation, breakthrough therapy designation, priority review, RMAT designation and accelerated approval do not change the standards for approval, but may expedite the development or approval process. Even if a product candidate qualifies for one or more of these programs, the FDA may later decide that the product candidate no longer meets the conditions for qualification or decide that the time period for FDA review or approval will not be shortened.

Post-Approval Requirements

Any products manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing user fee requirements, under which the FDA assesses an annual program fee for each product identified in an approved NDA or BLA. Drug and biologic manufacturers and their subcontractors 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 cGMPs, which impose certain procedural and documentation requirements upon us and our third-party manufacturers. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMPs and impose reporting requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMPs and other aspects of regulatory compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program.

Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters, or untitled letters;
- clinical holds on clinical trials;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

The FDA also may require post-marketing testing, known as Phase 4 testing, and surveillance to monitor the effects of an approved product. 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.

The FDA closely regulates the marketing, labeling, advertising and promotion of drug products. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe, in their independent professional medical judgment, legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products. The federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined companies from engaging in off-label promotion. The FDA and other regulatory agencies have also required that companies enter into consent decrees or permanent injunctions under which specified promotional conduct is changed or curtailed. However, companies may share truthful and not misleading information that is otherwise consistent with a product's FDA-approved labeling.

In addition, the distribution of prescription biopharmaceutical products is subject to the Prescription Drug Marketing Act, or PDMA, which regulates the distribution of drugs and drug samples at the federal level and sets minimum standards for the registration and regulation of drug distributors by the states. Both the PDMA and state laws limit the distribution of prescription biopharmaceutical product samples and impose requirements to ensure accountability in distribution.

Biosimilars and Reference Product Exclusivity

The Biologics Price Competition and Innovation Act of 2009, or BPCIA, created an abbreviated approval pathway for biological products that are highly similar, or "biosimilar," to or interchangeable with an FDA-approved reference biological product. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars. Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, is generally shown through analytical studies, animal studies, and a clinical trial or trials. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. A product shown to be biosimilar or interchangeable with an FDA-approved reference biological product may rely in part on the FDA's previous determination of safety and effectiveness for the reference product for approval, which can potentially reduce the cost and time required to obtain approval to market the product.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing that applicant's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

A biological product can also obtain pediatric market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued "Written Request" for such a study.

Data Privacy and Security

Other federal legislation may affect our ability to obtain certain health information in conjunction with our research activities. We may be subject to data privacy and security regulation by both the federal government and the states in which we conduct our business. The Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 and its implementing regulations, collectively referred to as HIPAA, imposes obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information. HIPAA also prohibits knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statements or representation, or making or using any false writing or document knowing the same to contain any materially false, fictitious or fraudulent statement or entry in connection with the delivery of or payment for healthcare benefits, items or services. We may obtain health information from third parties, such as research institutions, that are subject to privacy and security requirements under HIPAA. Although we are not directly subject to HIPAA, other than with respect to providing certain employee benefits, we could potentially be subject to criminal penalties if we, our affiliates, or our agents knowingly obtain or disclose individually identifiable health information maintained by a HIPAA-covered entity in a manner that is not authorized or permitted by HIPAA.

In addition, numerous federal and state laws and regulations that address privacy and data security, including state data breach notification laws, state health information privacy laws, and federal and state consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), govern the collection, use, disclosure and protection of health-related and other personal information. Failure to comply with data protection laws and regulations could result in government enforcement actions and create liability for us, which could include civil and/or criminal penalties, private litigation and/or adverse publicity that could negatively affect our business.

Failure to achieve and sustain compliance with applicable federal and state privacy, security and fraud laws could result in government enforcement actions and create liability for us, which could include civil and/or criminal penalties, private litigation and/or adverse publicity that could negatively affect our operating results and business.

Other U.S. Regulatory Requirements

Biopharmaceutical companies are subject to additional healthcare regulation and enforcement by the federal government and by authorities in the states and foreign jurisdictions in which they conduct their business that may constrain the financial arrangements and relationships through which we research, as well as sell, market and distribute any products for which we obtain marketing authorization. Such laws include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, and transparency laws and regulations related to drug pricing and payments and other transfers of value made to physicians and other healthcare providers. If their operations are found to be in violation of any of such laws or any other governmental regulations that apply, they may be subject to penalties, including, without limitation, administrative, civil and criminal penalties, damages, fines, disgorgement, the curtailment or restructuring of operations, integrity oversight and reporting obligations, exclusion from participation in federal and state healthcare programs and responsible individuals may be subject to imprisonment.

Coverage and Reimbursement

Sales of any product depend, in part, on the extent to which such product will be covered by third-party payors, such as federal, state, and foreign government healthcare programs, commercial insurance and managed healthcare organizations, and the level of reimbursement for such product by third-party payors. In the United States, no uniform policy of coverage and reimbursement for products exists among third-party payors and coverage and reimbursement levels for products can differ significantly from payor to payor. The Medicare and Medicaid programs increasingly are used as models for how private payors and other governmental payors develop their coverage and reimbursement policies for drugs and biologics. Factors payors consider in determining reimbursement are based on whether the product is (i) a covered benefit under its health plan, (ii) safe, effective and medically necessary, (iii) appropriate for the specific patient, (iv) cost-effective and (v) neither experimental nor investigational. Decisions regarding the extent of coverage and amount of reimbursement to be provided are made on a plan-by-plan basis. These third-party payors are increasingly reducing reimbursements for medical products, drugs and services. For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs.

In addition, the U.S. government, state legislatures and foreign governments have continued implementing cost-containment programs, including price controls, restrictions on coverage and reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit sales of any product. Decreases in third-party reimbursement for any product or a decision by a third-party payor not to cover a product could reduce physician usage and patient demand for the product and also have a material adverse effect on sales.

Healthcare Reform

In March 2010, the ACA was enacted, which substantially changed the way healthcare is financed by both governmental and private insurers, and significantly affected the biopharmaceutical industry. The ACA contained a number of provisions, including those governing enrollment in federal healthcare programs, reimbursement adjustments and changes to fraud and abuse laws. Additionally, the ACA:

- increased the minimum level of Medicaid rebates payable by manufacturers of brand name drugs from 15.1% to 23.1% of the average manufacturer price;
- required collection of rebates for drugs paid by Medicaid managed care organizations;
- required manufacturers to participate in a coverage gap discount program, under which they must agree to offer 50% (increased to 70% pursuant to the Bipartisan Budget Act of 2018, effective as of January 1, 2019) point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; and
- imposed a non-deductible annual fee on pharmaceutical manufacturers or importers who sell "branded prescription drugs" to specified federal government programs.

Other legislative changes have been proposed and adopted since the ACA was enacted, including aggregate reductions of Medicare payments to providers of 2% per fiscal year. Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products, which has resulted in several Congressional inquiries, proposed and enacted legislation and executive orders issued by the former Trump administration 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 drug products. Individual states in the United States have also become increasingly active in implementing regulations designed to control pharmaceutical 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.

International Regulation

In order to market any product outside of the United States, a company must also comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety and efficacy and governing, among other things, clinical trials, marketing authorization, commercial sales and distribution of products. Whether or not it obtains FDA approval for a product, an applicant will need to obtain the necessary approvals by the comparable foreign regulatory authorities before it can commence clinical trials or marketing of the product in those countries or jurisdictions.

The regulation of our product candidates outside of the United States varies by country. Certain countries regulate human tissue products as a pharmaceutical product, which would require us to make extensive filings and obtain regulatory approvals before selling our product candidates. Certain other countries classify our product candidates as human tissue for transplantation but may restrict its import or sale. Other countries may have no application regulations regarding the import or sale of products similar to our product candidates, creating uncertainty as to what standards we may be required to meet.

Employees

As of September 30, 2023, we had eight full-time employees, including five employees with medical or doctoral degrees and six employees directly engaged in research and development, with the rest providing administrative, business and operations support. None of our employees are represented by labor unions or covered by collective bargaining agreements. We consider the relationship with our employees to be good.

Our Facilities

Our principal executive offices are located at 455 E. Medical Center Blvd., Suite 300, Houston, Texas, where we lease approximately 23,000 square feet of office space. The space serves as the location of our corporate headquarters. The lease expires in April 2027. In addition, we have leased research labs and offices in Houston, Texas, for our research and cell manufacturing operations.

We believe that our facilities are adequate for our current and anticipated near-term needs and that suitable additional or substitute space would be available if needed.

Legal Proceedings

From time to time, we may be party to litigation arising in the ordinary course of business. We are currently not a party to any material legal proceedings and, to the best of our knowledge, no material legal proceedings are currently pending or threatened. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

MANAGEMENT

Executive Officers

The following table sets forth certain information, as of the date of this prospectus, concerning our executive officers:

Name	Age	Position
Pete O'Heeron, MSHA	60	Founder, Chairperson and Chief Executive Officer
Mark Andersen, CPA CFA	52	Chief Financial Officer
Hamid Khoja, Ph.D.	54	Chief Scientific Officer

The following is a biographical summary of the experience of our executive officers.

Pete O'Heeron, MSHA. Pete O'Heeron founded our company and has served as our Chief Executive Officer, and the Chairperson and member of our board of directors since our inception in April 2021. Mr. O'Heeron is also the founder of FibroGenesis, our affiliate, and has served as the Chief Executive Officer of FibroGenesis since January 2006. Mr. O'Heeron is a preeminent biopharma inventor, with over 300 patents issued and pending in the areas of biologics, cell therapy and medical devices. Mr. O'Heeron is a seasoned leader in his field, with over 25 years of experience in medical technology and biotech development. As Chief Executive Officer, he aims to position us to become a global leader in fibroblast-based cell therapies with the development and commercialization of therapies that can cure and treat patients suffering from chronic diseases. Mr. O'Heeron brings together multi-disciplinary teams and resources necessary to commercialize unique technologies. Prior to founding our company and FibroGenesis, he founded an operational investment group, Advanced Medical Technologies, LLC, that identified early-stage opportunities in the medical field with strong intellectual property potential in 2006. He also founded in 1998 NeoSurg Technologies, which developed the T2000 Minimally Invasive Access System. NeoSurg Technologies was sold to Cooper Surgical in 2006. Mr. O'Heeron also previously served in a variety of executive-level positions at Christus Health Care Corporation from 1988 until 1995 and has provided strategic advisory services to healthcare companies in the areas of biologics, advanced surgical instrumentation and telemedicine. Mr. O'Heeron received his Bachelor's Degree in Healthcare Administration from Texas State University, his Masters in Healthcare Administration from the University of Houston Clear Lake, and his Executive Management Certification in Mergers and Acquisition from the University of Chicago. We believe Mr. O'Heeron is qualified to serve as a member of our board of directors based on our review of his experience, qualifications, attributes and skills, including co-founding our company and his executive leadership experience in the biotechnology industry.

Mark Andersen, CPA CFA. Mark Andersen has served as our Chief Financial Officer since June 2022. Prior to joining us, Mr. Andersen most recently served as Chief Financial Officer and Vice President of Administration for the Indiana Biosciences Research Institute in Indianapolis, Indiana, from May 2016 until May 2022. In that role, he was responsible for finance, human resources, legal, and information technology for the institute. Mr. Andersen helped create the operating infrastructure for the institute, assisted with fundraising and provided oversight for the endowment investment portfolio, which grew to nearly $150.0 million. Prior to that, from August 2015 until February 2016, Mr. Andersen served as Vice President Finance and Corporate Controller for MiMedx with responsibility for SEC reporting and finance functions. Previously, from January 2004 to August 2015, Mr. Andersen held multiple financial leadership roles at Eli Lilly and Company, including Investments Director for the company's pension plan, Finance Director for Mergers and Acquisitions, and Controller for Lilly USA. Mr. Andersen received his Bachelor of Science degree in accounting and Master of Science in accountancy from Southern Utah University, and his MBA from the University of Michigan Ross School of Business.

Hamid Khoja, Ph.D. Hamid Khoja has served as our Chief Scientific Officer since August 2021. Dr. Khoja has more than 25 years of experience as a leader of scientific teams, development of cell-based genomic, proteomic, epigenetics assays, and tools, protocols and technologies for use in drug discovery and development and clinical diagnostics. Prior to joining us, Dr. Khoja most recently served from March 2009 to August 2021 as the Principal Scientist as Covaris, LLC, a privately-held scientific tools company with emphasis in genomics, epigenetics, and proteomics, where he provided long-term strategic applications proposals to the Chief Executive Officer, managed external collaborations for product and applications development, assessed new technologies for acquisition and OEM opportunities, and presented posters and presentations at numerous scientific conferences. Dr. Khoja led the effort in successfully incorporating Covaris technology into the Illumina Next Generation Sequencing technology protocols leading to over 15,000 citations. Dr. Khoja also developed the Covaris chromatin immunoprecipitation methodology with over 3,000 citations in peer-reviewed publications, as well as leading the effort in using Covaris technology for simplifying epigenetics assay workflows for use in drug development and discovery, and clinical use. Dr. Khoja also led collaborations with the U.S. National Cancer Institute for successful development of microbiome DNA extraction using acoustics, and completion of FDA EUA SARA-CoC-2 bridge study design for approval of new sample collection and viral ribonucleic acid (RNA) extraction using Covaris technology. Dr. Khoja also developed a patented workflow for the manufacturing of synthetic cell-free DNA for use as reference standard in sequencing based liquid biopsy clinical oncology-based assays. Prior to Covaris, Dr. Khoja was a Senior Applications Scientist at Genomic Solutions, a startup scientific tools company later acquired by Harvard Apparatus, from March 2022 to March 2009, where he led the development of a high throughput protein crystallization platform used in pharmaceutical industry for drug development, managed the scientific applications group, presented company resources at scientific meetings and assessed new technologies for acquisition and OEM opportunities. During the startup phase of Sequenom, Inc., from January 2000 to March 2003, Dr. Khoja established the methodology for highly multiplexed polymerase chain reaction, or PCR, used in the development of Sequenom's massEXTEND technology for MALDI-TOF MS-based analysis of single nucleotide polymorphisms and genetic disease. Dr. Khoja led the effort in developing diagnostic MS-based assays for hemochromatosis, cystic fibrosis and ten predominantly Jewish genetic diseases using Sequenom's massEXTEND technology which were then transferred to a large clinical diagnostic company. Dr. Khoja also previously worked at Eli Lilly and Company from November 1998 to September 1999 and Chiron Corporation from October 1995 to October 1998. During his career at Eli Lilly, Dr. Khoja established a high throughput PCR and sequencing strategy using a variety of sequencing strategies and bioinformatic tools available in 1999 for obtaining high coverage genome sequencing which led to the finalizing of the first ever complete sequence of the S. pneumoniae genome. At Chiron Corporation, which was subsequently acquired by Novartis, Dr. Khoja helped in the design, development and optimization of HTP binding assays for FGFR, VEGF, PDGF, and EPO receptors, identification of novel g-protein coupled seven transmembrane receptors, and identification of novel proteins involved in the TNF signaling pathway, and development of branched-DNA based HTP screening for ligand-induced oncogene quantification.

Dr. Khoja received his Bachelor of Science in Molecular Biology from the University of Southern California and his Ph.D. in Molecular Biology from Boston University.

Non-Employee Directors

The following table sets forth certain information, as of the date of this prospectus, concerning our non-employees who serve on our board of directors:

Name	Age	Position
Robert Hoffman, CPA (inactive)	57	Director
Victoria Niklas, M.D.	64	Director
Richard Cilento, Jr., MBA	61	Director
Stacy Coen, MBA	52	Director
Matthew Link	48	Director

The following is a biographical summary of the experience of our non-employee directors.

Robert Hoffman, CPA (inactive). Robert Hoffman has served on our board of directors since April 2021. Mr. Hoffman currently serves as President, Chief Executive Officer and Chairperson of the board of directors of Kintara Therapeutics, Inc. (Nasdaq: KTRA), a clinical stage, biopharmaceutical company focused on the development and commercialization of new cancer therapies, a member of the board of directors of ASLAN Pharmaceuticals Limited (Nasdaq: ASLN), an oncology-focused biotechnology company developing a portfolio of immuno-oncology agents and targeted therapies, and Chairperson, and a member, of the board of directors of Antibe Therapeutics Inc., a Toronto, Canada-based pharmaceutical company listed on the Toronto Stock Exchange. Mr. Hoffman previously served as Senior Vice President and Chief Financial Officer of Heron Therapeutics, Inc., (Nasdaq: HRTX), a commercial-stage biotechnology company, from April 2017 to October 2020, and as Chief Financial Officer of AnaptysBio, Inc. (Nasdaq: ANAB), a specialty pharmaceutical company, from July 2015 to September 2016. From June 2012 to July 2015, Mr. Hoffman served as the Senior Vice President, Finance and Chief Financial Officer of Arena Pharmaceuticals, Inc., or Arena, a biopharmaceutical company, prior to its acquisition by Pfizer Inc. in March 2022. From August 2011 to June 2012 and previously from December 2005 to March 2011, Mr. Hoffman served as Arena's Vice President, Finance and Chief Financial Officer and in a number of various roles of increasing responsibility from 1997 to December 2005. Mr. Hoffman formerly served as a member of the board of directors of Saniona AB, a biopharmaceutical company, from September 2021 to May 2022, and as a member of the board of directors of Kura Oncology, Inc. (Nasdaq: KURA), a cancer research company, from March 2015 to August 2021. He also previously served as a member of the board of directors of CombiMatrix Corporation, a molecular diagnostics company, MabVax Therapeutics Holdings, Inc., a biopharmaceutical company, and Aravive, Inc. (Nasdaq: ARAV), a clinical stage biotechnology company. Mr. Hoffman serves as a member of the steering committee of the Association of Bioscience Financial Officers. Mr. Hoffman formerly served as a director and President of the San Diego Chapter of Financial Executives International and was an advisor to the Financial Accounting Standard Board, or FASB, from 2010 to 2020, advising the U.S. accounting rulemaking organization on emerging issues and new financial guidance. Mr. Hoffman holds a B.B.A. from St. Bonaventure University. We believe Mr. Hoffman's financial and executive business experience qualifies him to serve on our board of directors.

Victoria Niklas, M.D. Victoria Niklas has served on our board of directors since April 2021. Dr. Niklas has a distinguished career spanning more than two decades in translational research, clinical care and teaching at academic health centers, and is currently the Chief Medical Officer of Oak Hill Bio, a clinical-stage neonatology and rare disease therapeutics company, a position she has held since 2022. Prior to joining Oak Hill Bio, Dr. Niklas served in Global Medical Affairs and as Global Program Leader of the OHB-607 program in Rare Disease and Hematology at Takeda Pharmaceuticals. Before Takeda, she was Chief Medical and Scientific Officer at Prolacta Bioscience, a neonatal nutritional product development company based on human donor milk. Dr. Niklas has over 20 years of experience as an academic neonatologist with expertise in developmental and acquired inflammatory disorders of the gut, the lung and the mucosal immune system with relevance to diseases across the lifespan. She has held positions as Chief, Division of Newborn Medicine at Nemours Children's Hospital, Chief of Neonatology at UCLA Olive View Medical Center, and Visiting Professor of Clinical Pediatrics at the David Geffen School of Medicine at UCLA. Dr. Niklas is board certified in Perinatal and Neonatal Medicine and holds a California medical license. In addition to being a co-author on numerous scientific and clinical publications, she has helped lead the development of patented products and has served as a board member for multiple biotech and early-stage companies in functional foods. Dr. Niklas received her MD from Harvard Medical School, her MA in Biochemistry and Molecular Biology from Harvard University, and her bachelor's in Biological Sciences from Goucher College. We believe Dr. Niklas' extensive experience and knowledge in the biotechnology sector qualifies her to serve on our board of directors.

Richard Cilento, Jr., MBA. Richard Cilento has served on our board of directors since April 2021. Mr. Cilento is the founder, Chairperson of the board of directors and Chief Executive Officer of GlycosBio Inc., a life sciences research and development company. Mr. Cilento was the founder, President and Chief Executive Officer of FuelQuest, Inc., a provider of information technology, supply chain management and tax automation technologies, which was acquired by Saracen Energy Advisors LP in May 2007. Mr. Cilento has held senior-management positions with several technology firms, including Xerox Corporation, where he served as Vice President of Strategic Services of Xerox Connect. Prior to that, he was the Vice President of Corporate Services for XLConnect Solutions, where he served as the lead technologist for advanced systems and supported the organization through its initial public offering and its eventual merger with Xerox. An aeronautical and astronomical engineer, Mr. Cilento began his career at the U.S. National Aeronautics and Space Administration (NASA), where he and his team built space shuttle flight plans for the U.S. Department of Defense Star Wars program and a diverse set of government-funded technology and life science experimentation. Mr. Cilento was a lead engineer who designed and planned the space station assembly sequences for the construction of the International Space Station. Mr. Cilento holds a BS degree in Aeronautical and Astronomical Engineering from the University of Illinois and an MBA at the University of Houston. We believe Mr. Cilento's business experience across a broad set of technical industries and executive-level knowledge of capital markets, including venture capital, private equity and public markets, qualifies him to serve on our board of directors.

Stacy Coen, MBA. Stacy Coen has served as a member of our board of directors since July 2021. Ms. Coen has over 25 years of business and corporate development experience from leading oncology and rare disease companies. She is currently the Chief Business Officer for ImmunoGen, Inc., a company that is developing the next generation of antibody-drug conjugates to improve outcomes for cancer patients. Prior to ImmunoGen, Ms. Coen worked at Editas Medicine, Inc., a biotechnology company developing therapies for rare diseases, where she served as Vice President, Business Development and was responsible for business development, strategy, transactions and alliance management. Prior to joining Editas, Ms. Coen served in multiple roles of increasing responsibility at Genzyme Corporation (now known as Sanofi Genzyme), including as Vice President, Head of Rare Disease Business Development and Licensing, and as Vice President, Global Head of Strategy and Business Development, Multiple Sclerosis, among others. Ms. Coen currently serves on the Huntington's Disease Society of America's Center Programs & Education Advisory Committee and is a member of MassBio and the Alliance for Regenerative Medicine. Ms. Coen received a BS in Finance and Economics from the University of Massachusetts and an MBA from the Darden Graduate School of Business at the University of Virginia. We believe Ms. Coen's extensive executive-level experience in the biotechnology industry qualifies her to serve on our board of directors.

Matthew Link. Matthew Link has served on our board of directors since April 2021. Mr. Link has more than 20 years of experience in the healthcare and medical technology industries and currently serves as Chief Commercial Officer for Sight Sciences (SGHT). From 2021 to 2023 he served as managing partner at Orion Healthcare Advisors, LLC, a consulting services provider. From 2006 to 2021 Mr. Link served in regional and executive leadership positions at NuVasive Inc., a global leader in surgical implants and enabling technology for spine surgery and orthopedics. As President of NuVasive, Inc., his responsibilities included oversight of global business units in spine, neurophysiology, and orthopedics. Prior to NuVasive, Inc., Mr. Link held commercial leadership roles at Depuy Orthopedics and Depuy Spine. He also currently serves as chairman of the board of directors at Galen Robotics and as a member of the board of directors of Springbok Analytics and DinamicOR, and the Coulter Translational Research Endowment at the University of Virginia. Mr. Link received a BSEd in Physical Education and Sports Medicine from the University of Virginia. We believe Mr. Link's extensive medical technology industry and executive experience qualifies him to serve on our board of directors.

Family Relationships

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

Scientific Advisory Board

We have a scientific advisory board, comprised of the following world-renowned scientists with relevant expertise, which helps guide our research and development efforts.

- Claudia Lucchinetti, M.D., Ph.D.
- S. Thomas Carmichael, M.D., Ph.D.
- Kate Rubins, Ph.D.
- Elizabeth Shpall, M.D.
- Neil Bhowmick, Ph.D.

Board of Directors

Our board of directors currently consists of six directors. Our certificate of incorporation provides that, subject to the rights of holders of any series of our preferred stock to elect directors, the number of directors on our board of directors shall be fixed from time to time solely by resolution of the majority of the total number of authorized directors, whether or not there exist any vacancies in previously authorized directorships. Each of our directors serves a term ending on the next annual meeting of our stockholders following such director's election or appointment, subject to such director's earlier death, disqualification, resignation or removal.

Pursuant to our certificate of incorporation, subject to the preferential rights of holders of any series of our preferred stock, any newly created directorship that results from an increase in the number of directors or any vacancy on our board of directors can only be filled by the affirmative vote of a majority of the total number of directors then in office, even if less than a quorum, or by a sole remaining director and cannot be filled by the stockholders. Further, any member of our board of directors or our entire board of directors may only be removed for cause, and then only by the affirmative vote of the holders of at least $66^{2/3}\%$ in voting power of our stock.

Under our amended and restated certificate of incorporation, which will become effective in connection with the effectiveness of the registration statement of which this prospectus forms a part, upon the effectiveness of the registration statement of which this prospectus forms a part, our board of directors will be divided into three classes, with directors serving staggered three-year terms.

When considering whether directors have the experience, qualifications, attributes or skills, taken as a whole, to enable our board of directors to satisfy its oversight responsibilities effectively in light of our business and structure, the board of directors focuses primarily on each person's background and experience as reflected in the information discussed in each of the directors' individual biographies set forth above. We believe that our directors provide an appropriate mix of experience and skills relevant to the size and nature of our business.

Director Independence

Our board of directors has determined that all members of our board of directors, except Pete O'Heeron, are independent directors for purposes of the rules of Nasdaq and the SEC. In making this determination, our board of directors considered the relationships that each non-employee director has with us and all other facts and circumstances that our board of directors deemed relevant, including the beneficial ownership of our common stock by each non-employee director.

Upon the effectiveness of the registration of which this prospectus forms a part, we expect that the composition and functioning of our board of directors and each of our committees will comply with all applicable requirements of Nasdaq and the rules and regulations of the SEC, subject to applicable phase-in periods for committees.

Staggered Board

In accordance with the terms of our amended and restated certificate of incorporation, which will become effective in connection with the effectiveness of the registration statement of which this prospectus forms a part, our board of directors will be divided into three staggered classes of directors and each will be assigned to one of the three classes. At each annual meeting of our stockholders, a class of directors will be elected for a three-year term to succeed the directors of the same class whose terms are then expiring. The terms of the directors will expire upon the election and qualification of successor directors at the annual meeting of shareholders to be held during the years 2024 for Class I directors, 2025 for Class II directors and 2026 for Class III directors.

- Our Class I directors will be Robert Hoffman and Richard Cilento, Jr.;
- Our Class II directors will be Mathew Link and Victoria Niklas; and
- Our Class III directors will be Stacy Coen and Pete O'Heeron.

The division of our board of directors into three classes with staggered three-year terms may delay or prevent stockholder efforts to effect a change of our management or a change in our control.

Board Leadership Structure

Our board of directors is currently chaired by our founder, Pete O'Heeron. Our corporate governance guidelines further provide the flexibility for our board of directors to modify our leadership structure in the future as it deems appropriate.

Committees of our Board of Directors

Our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee, each of which operates pursuant to a charter adopted by our board of directors. Our board of directors may also establish other committees from time to time to assist the board of directors. The composition and functioning of all of our committees complies with all applicable requirements of the Sarbanes-Oxley Act, Nasdaq and SEC rules and regulations. Upon our listing on Nasdaq, each committee's charter will be available on our website at www.fibrobiologics.com.

Audit Committee

The members of our audit committee are Mr. Hoffman, Dr. Niklas, and Mr. Cilento. Mr. Hoffman serves as the chairperson of the committee. Our board of directors has determined that each member of the audit committee is "independent" as that term is defined in Nasdaq rules and has sufficient knowledge in financial and auditing matters to serve on the audit committee. In addition, our board of directors has determined that each member of the audit committee meets the heightened independence requirements for audit committees required under Section 10A of the Exchange Act and related SEC and Nasdaq rules. Our board of directors has determined that Mr. Hoffman is an "audit committee financial expert," as defined under the applicable rules of the SEC. The audit committee's responsibilities include:

- appointing, approving the compensation of and assessing the independence of our independent registered public accounting firm;

- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending based upon the audit committee's review and discussions with management and our independent registered public accounting firm whether our audited financial statements shall be included in our annual report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the audit committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and approving all such transactions; and
- reviewing quarterly earnings releases.

Compensation Committee

The members of our compensation committee are Mr. Hoffman, Ms. Coen and Mr. Link. Mr. Hoffman serves as the chairperson of the committee. Our board of directors has determined that each member of the compensation committee is "independent" as that term is defined in Nasdaq rules and is a "non-employee director" under Rule 16b-3 under the Exchange Act. In addition, our board of directors has determined that each member of the compensation committee meets the heightened independence requirements for compensation committee purposes under Section 10C of the Exchange Act and related SEC and Nasdaq rules. The compensation committee's responsibilities include:

- reviewing and approving our philosophy, policies and plans with respect to the compensation of our chief executive officer;
- making recommendations to our board of directors with respect to the compensation of our chief executive officer and our other executive officers;
- reviewing and assessing the independence of compensation advisors;
- overseeing and administering our equity incentive plans;
- reviewing and making recommendations to our board of directors with respect to director compensation; and
- preparing the compensation committee reports required by the SEC, including our "compensation discussion and analysis" disclosure.

Nominating and Corporate Governance Committee

The members of our nominating and corporate governance committee are Ms. Coen, Dr. Niklas and Mr. Link. Ms. Coen serves as the chairperson of the committee. Our board of directors has determined that each member of the nominating and corporate governance committee is "independent" as defined in Nasdaq rules. The nominating and corporate governance committee's responsibilities include:

- developing and recommending to the board of directors criteria for board and committee membership;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by shareholders;
- reviewing the composition of the board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise us;
- identifying and screening individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board's committees;
- developing and recommending to the board of directors a code of business conduct and ethics and a set of corporate governance guidelines; and
- overseeing the evaluation of our board of directors and management.

Code of Conduct

We have adopted a written code of business conduct and ethics, that applies to our directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. In connection with the effectiveness of the registration statement of which this prospectus forms a part, a current copy of the code will be posted on our website at www.fibrobiologics.com. If we make any substantive amendments to, or grant any waivers from, the code of business conduct and ethics for any officer or director, we will disclose the nature of such amendment or waiver on our website or in a current report on Form 8-K.

EXECUTIVE AND DIRECTOR COMPENSATION

Executive Compensation

This section discusses the material components of the executive compensation program for our executive officers who are named in the "*—2022 Summary Compensation Table*" below. For the fiscal year ended December 31, 2022, our "named executive officers" and their positions were as follows:

- Pete O'Heeron, Chairperson and Chief Executive Officer;
- Hamid Khoja, Ph.D., Chief Scientific Officer; and
- Mark Andersen, Chief Financial Officer.

This discussion may contain forward-looking statements that are based on our current plans, considerations, expectations and determinations regarding future compensation programs. Actual compensation programs that we adopt following the completion of this offering may differ materially from the currently planned programs summarized in this discussion. As an "emerging growth company" and a "smaller reporting company," each as defined under SEC rules, we are not required to include a compensation discussion and analysis section and have elected to comply with the scaled disclosure requirements applicable to emerging growth companies and/or smaller reporting companies.

2022 Summary Compensation Table

The following table represents information regarding the total compensation awarded to, earned by or paid to our named executive officers during the fiscal year ended December 31, 2022:

Name and Principal Position	Year	Salary ($)	Bonus ($)	Option Awards ($) (2)	All Other Compensation ($)(3)	Total ($)
Pete O'Heeron *Chairperson and Chief Executive Officer*	2022	600,000	300,000	—	22,485	922,485
Hamid Khoja, Ph.D. *Chief Scientific Officer*	2022	300,208	148,896	23,900	20,505	493,509
Mark Andersen(1) *Chief Financial Officer*	2022	189,583	81,354	20,100	88,401	379,438

(1) Mark Andersen joined us in June 2022.
(2) In accordance with SEC rules, amounts in this column reflect the aggregate grant date fair value of stock options granted computed in accordance with ASC 718, rather than the amounts paid or realized by the named individual. We provide information regarding the assumptions used to calculate the value of the stock options granted in Note 11 to our audited financial statements included elsewhere in this prospectus.
(3) Amounts in the "All Other Compensation" column consist of the amounts set forth in the table below:

Named Executive Officer	401(k) Plan Matching Contributions ($)	Healthcare Benefits ($)	Relocation ($)
Pete O'Heeron	—	22,485	—
Hamid Khoja, Ph.D.	—	20,505	—
Mark Andersen	6,500	20,512	61,389

2022 Salaries

In 2022, our named executive officers received an annual base salary to compensate them for services rendered to us. The base salary payable to each named executive officer is intended to provide a fixed component of compensation reflecting the executive's skill set, experience, role, and responsibilities.

For fiscal year 2022, Mr. O'Heeron's annual base salary was $600,000 and Mr. Andersen's annual base salary was $325,000. Dr. Khoja's annual base salary was increased from $290,000 to $325,000 during fiscal year 2022.

2022 Bonuses

In fiscal year 2022, Mr. O'Heeron was eligible to receive an annual cash bonus targeted at 50% of his base salary, Dr. Khoja was eligible to earn an annual cash bonus targeted at 35% of base salary, and Mr. Andersen was eligible to earn an annual cash bonus targeted at 35% of base salary, prorated for 2022 based upon the beginning of his employment with us in June 2022.

Each named executive officer was eligible to earn his bonus based on the attainment of pre-established annual company and individual performance objectives, as determined by our board of directors in their discretion. Dr. Khoja was awarded a bonus after his first anniversary in 2022. Future bonuses will be based upon calendar years, with the first calendar year bonus pro rata from the date of his anniversary with us.

Annual bonuses are determined based upon both company performance and individual contributions for the fiscal year and are generally determined and awarded in January of the subsequent year.

Equity Compensation

Dr. Khoja and Mr. Andersen each received commitments in their employment agreements for the equivalent of 7,500 stock options. These options were granted in 2022 after the 2022 Stock Plan (as defined herein) was approved and authorized. Dr. Khoja was also awarded the equivalent of 1,250 shares of non-voting common stock in 2022 prior to establishment of the 2022 Stock Plan. The stock options granted to named executives in 2022 vest 1/3 on the first anniversary date of employment and $1/36^{th}$ each month thereafter until fully vested, subject to continued service, and will accelerate in full upon the occurrence of a "change in control" of the Company (as defined in the 2022 Stock Plan). For additional information about the 2022 Stock Plan, please see the section titled "—Equity Compensation Plans" below.

Other Elements of Compensation

Retirement Plans

We participate in Insperity's 401(k) retirement savings plan for our employees, including our named executive officers, who satisfy certain eligibility requirements. Our named executive officers are eligible to participate in the Insperity 401(k) plan on the same terms as other full-time employees. In 2022, contributions made by participants in the 401(k) plan were matched up to a specified percentage of the employee contributions on behalf of the named executive officers. These matching contributions are fully vested as of the date on which the contribution is made. We anticipate that, following the consummation of the Direct Listing, our named executive officers will continue to participate in this Insperity 401(k) plan on the same terms as other full-time employees.

Employee Benefits and Perquisites

Health/Welfare Plans. All of our full-time employees, including our named executive officers, are eligible to participate in Insperity's health and welfare plans, including:

- medical, dental and vision benefits;
- medical and dependent care flexible spending accounts;
- short-term and long-term disability insurance; and
- life insurance.

We believe that the employee benefits described above are necessary and appropriate to provide a competitive compensation package to our named executive officers.

Employment Agreements with our Named Executive Officers

Pete O'Heeron Employment Agreement

At this current time, we have no employment agreement in place for Mr. O'Heeron.

Hamid Khoja, Ph.D. Employment Agreement

We have entered into an employment agreement with Dr. Khoja, dated July 20, 2021, pursuant to which Dr. Khoja serves as our Chief Scientific Officer. Dr. Khoja's employment pursuant to the agreement is "at-will" and is terminable by either party for any reason and with or without notice.

Pursuant to his agreement, Dr. Khoja is entitled to receive an initial base salary of $290,000, which was increased to $325,000 in 2022. In addition, the agreement provides that Dr. Khoja is eligible to receive an annual performance bonus of up to 35% of his base salary, to be paid based on the achievement of company and individual performance goals. In connection with his entry into the offer letter, Dr. Khoja was granted a stock option award for the equivalent of 7,500 shares of common stock, which vests as to 1/3 of the shares underlying the stock option on the first anniversary of employment date and $1/36^{th}$ per month thereafter until fully vested, subject to continued employment through the applicable vesting date. Pursuant to the agreement, Dr. Khoja was also paid a one-time cash bonus equal to $15,000 in connection with his commencement of employment and was entitled to payment of up to $45,000 of relocation expenses. The agreement also provides that Dr. Khoja is eligible to participate in the health and welfare benefit plans and programs maintained by us for the benefit of our employees.

Pursuant to the agreement, if Dr. Khoja's employment is terminated by the Company without cause, then he will be eligible to receive severance in an amount equal to nine months' base salary.

Mark Andersen Employment Agreement

We have entered into an employment agreement with Mr. Andersen, dated May 20, 2022, pursuant to which Mr. Andersen serves as our Chief Financial Officer. Mr. Andersen's employment pursuant to the agreement is "at-will" and is terminable by either party for any reason with or without notice.

Pursuant to his agreement, Mr. Andersen is entitled to receive an initial base salary of $325,000. In addition, the agreement provides that Mr. Andersen is eligible to receive an annual performance bonus of up to 35% of his base salary, to be paid based on the achievement of company and individual performance goals. In connection with his entry into the agreement, Mr. Andersen was granted a stock option award for the equivalent of 7,500 shares of common stock, which vests as to 1/3 of the shares underlying the stock option on the first anniversary of employment date and $1/36^{th}$ per month thereafter, subject to continued employment through the applicable vesting date. Pursuant to the agreement, Mr. Andersen was also paid a one-time cash bonus equal to $15,000 in connection with his commencement of employment and was entitled to payment of up to $45,000 of relocation expenses. The agreement also provides that Mr. Andersen is eligible to participate in the health and welfare benefit plans and programs maintained by us for the benefit of our employees.

Pursuant to the agreement, if Mr. Andersen's employment is terminated by the Company without cause, then he will be eligible to receive severance in an amount equal to nine months' base salary.

Equity Compensation Plans

The following summarizes the material terms of the FibroBiologics, Inc. 2022 Stock Plan, or the 2022 Stock Plan.

2022 Stock Plan

Our board of directors adopted on August 10, 2022, and our stockholders approved on August 18, 2022, our 2022 Stock Plan. The 2022 Stock Plan provides for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, and other stock awards. The 2022 Stock Plan, through the grant of stock awards, is intended to help us secure and retain the services of eligible award recipients, provide incentives for such persons to exert maximum efforts for our success and provide a means by which the eligible recipients may benefit from increases in value of our common stock. Through June 30, 2023, we have issued the equivalent of 101,250 options with a strike price of the equivalent of $3.28 per share to employees, directors, and scientific advisory board members, and the equivalent of 3,689,750 options with a strike price of the equivalent of $2.28 per share to employees and directors under the 2022 Stock Plan. Generally, awards granted by us vest over four years and have an exercise price equal to the estimated fair value of our common stock as determined by our board of directors with consideration given to contemporaneous valuations of our common stock prepared by an independent third-party valuation firm.

As of June 30, 2023, there were the equivalent of 8,709,000 shares available for future issuance under the 2022 Stock Plan.

Outstanding Equity Awards at December 31, 2022

The following table presents information regarding outstanding equity awards held by our named executive officers as of December 31, 2022. Other than the equivalent of 1,250 shares of non-voting common stock awarded to Dr. Khoja in 2022 prior to establishment of the 2022 Stock Plan, all awards were granted under our 2022 Stock Plan.

Name	Number of securities underlying unexercised options (#) exercisable	Number of securities underlying unexercised options (#) unexercisable	Option exercise price ($)	Option expiration date
Pete O'Heeron	—	—	—	—
Hamid Khoja, Ph.D.	3,542	3,958	3.28	September 25, 2032
Mark Andersen	—	7,500	3.28	September 25, 2032

Director Compensation

Non-employee Director Compensation Table

The following table presents the total compensation for each person who served as a non-employee member of our board of directors during the fiscal year ended December 31, 2022. Other than as set forth in the table and described more fully below, we did not pay any compensation, make any equity awards or non-equity awards to, or pay any other compensation to any of the non-employee members of our board of directors in 2022 for their services as members of our board of directors. Pete O'Heeron, our Chairperson and Chief Executive Officer, received no additional compensation for his service as a director. See the section titled "Executive Compensation" for more information on the compensation paid to or earned by O'Heeron as an employee for the year ended December 31, 2022.

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($) [1] [3]	Option Awards ($)[2] [3]	Total ($)
Robert Hoffman	50,000	24,600	12,800	87,400
Victoria Niklas	43,000	24,600	12,800	80,400
Richard Cilento, Jr.	43,000	24,600	12,800	80,400
Stacy Coen	41,000	24,600	12,800	78,400
Matthew Link	41,000	24,600	12,800	78,400

(1) In January 2022, each of our non-employee directors was awarded the equivalent of 7,500 shares of stock.

(2) In September 2022, each of our non-employee directors was granted the equivalent of 5,000 stock options with an exercise price of the equivalent of $3.28 per share.

(3) The amounts reported represent the aggregate grant date fair value of the stock and stock options awarded to the non-employee directors during fiscal year 2022, calculated in accordance with ASC Topic 718. Such grant date fair value does not take into account any estimated forfeitures. The assumptions used in calculating the grant date fair value of the awards reported in this column are set forth in the notes to our financial statements included elsewhere in this prospectus. The amounts reported in this column reflect the accounting cost for the stock and stock options and do not correspond to the actual economic value that may be received upon exercise of the stock options or any sale of any of the underlying shares of common stock.

As of December 31, 2022, the non-employee members of our board of directors held the following aggregate number of unexercised options:

Name	Number of Securities Underlying Unexercised Options
Robert Hoffman	5,000
Victoria Niklas	5,000
Richard Cilento	5,000
Stacy Coen	5,000
Matthew Link	5,000

Except as set forth above, no non-employee member of our board of directors held unexercised options or unvested shares of our common stock as of December 31, 2022.

Non-Employee Director Compensation Policy

Our board of directors has adopted a non-employee director compensation policy that will continue upon the effectiveness of the registration statement of which this prospectus is a part. The policy is designed to enable us to attract and retain, on a long-term basis, highly qualified non-employee directors. Under the policy, each director who is not an employee will be paid cash compensation from and after the completion of this offering as set forth below:

Position		Annual Retainer
Board of Directors:		
Members (other than chair)	$	35,000
Audit Committee:		
Members (other than chair)	$	8,000
Retainer for chair	$	10,000
Compensation Committee:		
Members (other than chair)	$	6,000
Retainer for chair	$	10,000
Nominating and Corporate Governance Committee:		
Members (other than chair)	$	5,000
Retainer for chair	$	10,000

In addition, the non-employee director compensation policy provides that, upon initial election to our board of directors, each non-employee director will be granted an equity award the equivalent of 7,500 shares of common stock, or the Initial Grant. Furthermore, on the date of each of our annual meeting of stockholders, each non-employee director who continues as a non-employee director following such meeting will be granted an annual equity award of stock options, to purchase the equivalent of 5,000 shares, or the Annual Grant. The Annual Grant will vest in full upon the earlier of (i) the first anniversary of the date of grant or (ii) the date of the next annual meeting; provided, however, that all vesting shall cease if the director resigns from the board of directors or otherwise ceases to serve as a director, unless the board of directors determines that the circumstances warrant continuation of vesting. In addition, all vested options remain exercisable for 12 months if the director resigns from the board of directors or otherwise ceases to serve as a director. Notwithstanding the foregoing, if an outside director was initially elected to the board of directors within 12 months preceding the annual meeting, then such outside director shall receive an Annual Grant that is pro-rated on a monthly basis for time serving as an outside director.

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

The following is a summary of transactions or series of transactions since inception, or currently proposed transactions or series of transactions, to which we were, or will be, a party, in which the amount involved exceeded, or will exceed, $120,000, and in which any of our directors, executive officers, or to our knowledge, beneficial owners of 5% or more of our capital stock, or 5%+ Security Holders, or any member of the immediate family of, or entities affiliated with, any of the foregoing persons, had, or will have, a direct or indirect material interest.

Series A Preferred Stock

In May 2021, as part our formation, we issued the equivalent of 8,750,000 shares of our Series A Preferred Stock to FibroGenesis in exchange for a Patent Assignment Agreement, which assigns certain patents/applications to us, and an Intellectual Property Cross-License Agreement, which provides to us an exclusive license within defined fields of use for patents/applications retained by FibroGenesis and provides to FibroGenesis an exclusive license to the patents/applications assigned to FibroBiologics for all other fields of use.

In connection with the Direct Listing, all of our then outstanding Series A Preferred Stock will be automatically canceled, without the payment of additional consideration by or to the holder thereof.

FibroGenesis Loans

In July 2022, we loaned $300,000 to FibroGenesis at 0% interest and one year maturity date. In October 2022, we loaned an additional $60,000 to FibroGenesis at 0% interest and one year maturity. The $60,000 was fully repaid in December 2022 and the $300,000 was fully repaid in April 2023.

ROFN Agreement

In January 2023, we entered into an Agreement Regarding Right of First Negotiation with FibroGenesis, or the ROFN Agreement. In exchange for FibroGenesis' consent to amend our certificate of incorporation to (i) eliminate upon our underwritten initial public offering or the direct listing of our common stock on a securities exchange (which we collectively refer to as an IPO) or sale of our company, the liquidation preference for the Series A Preferred Stock, (ii) make the Series B Preferred Stock liquidation preference equal to Series A Preferred Stock and (iii) to provide that upon an IPO or sale of our company, the Series A Preferred Stock will be canceled for no consideration, we agreed to pay to FibroGenesis 15% of the gross proceeds from any equity investments in us prior to an IPO or sale of our company. In addition, we received a five-year right of first negotiation if FibroGenesis decides to license externally any of its technology. Through June 30, 2023, we have paid a total of $2.6 million to FibroGenesis under the ROFN Agreement based upon gross proceeds from equity investments received through June 30, 2023.

2021 and 2022 Convertible Notes

In December 2021, we issued and sold to investors, some of whom hold more than 5% shares, in a private placement $1.3 million of our convertible promissory notes, or the 2021 Notes. The 2021 Notes bore interest at an initial interest rate of 6.0% per annum and would have automatically converted into shares of our common stock in the event of a qualified financing. The conversion price of the 2021 Notes was equal to $200.0 million divided by the total number of equity interests prior to the dilution from the offering. The 2021 Notes were unsecured and subordinated in right of payment to the prior payment in full to all of our commercial finance lenders, insurance companies, lease financing institutions or other lending institutions approved by our board of directors and regularly engaged in the business of lending money. In April 2023, $1.3 million of these notes were converted into shares of our Series B Preferred Stock and none of the 2021 Notes are outstanding.

In January 2022 and April 2022, we issued and sold to investors, some of whom hold more than 5% of shares, in a private placement $0.35 million and $3.95 million, respectively, of our convertible promissory notes, or the 2022 Notes. The 2022 Notes bore interest at an initial interest rate of 6.0% per annum, had a one-year maturity, and could have been converted at the holder's request into shares of our common stock in the event of a qualified financing. The conversion price of the 2022 Notes was the lesser of (i) a 15% discount to the offering price of our common stock in the event of an IPO or (i) the quotient of $200.0 million divided by total equity interests prior to the dilution from the offering. The 2022 Notes were unsecured and subordinated in right of payment to the prior payment in full to all of our commercial finance lenders, insurance companies, lease financing institutions or other lending institutions approved by our board of directors and regularly engaged in the business of lending money. In February 2023 through June 2023, $4.3 million of these notes were converted into shares of our Series B Preferred Stock and none of the 2022 Notes are outstanding.

Equity and Compensation Arrangements

We adopted on August 10, 2022, and our stockholders approved on August 18, 2022, our 2022 Stock Plan, or the 2022 Plan. The 2022 Plan provides for the grant of incentive stock options, non-statutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, and other stock awards. We issued in 2022 a total of the equivalent of 101,250 options with an exercise price the equivalent of $3.28 per share to employees, directors, and scientific advisory board members under the 2022 Plan. In February 2023, we issued an additional equivalent of 3,689,750 options with an exercise price the equivalent of $2.28 per share to employees and directors. Generally, awards granted by the Company vest over three years and have an exercise price equal to the estimated fair value of the common stock as determined by our board of directors with consideration given to contemporaneous valuations of our common stock prepared by an independent third-party valuation firm.

PRINCIPAL AND REGISTERED STOCKHOLDERS

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth as of , 2023:

- certain information regarding the beneficial ownership of our voting securities (being our voting common stock and our Series C Preferred Stock) as of , 2023 by (i) each person or group of affiliated persons known by us to be the beneficial owner of more than 5% of our voting securities, (ii) each of our executive officers, (iii) each of our directors and (iv) all of our directors and executive officers as a group. Except as otherwise indicated, all persons listed below have (i) sole voting power and investment power with respect to their common stock, except to the extent that authority is shared by spouses under applicable law, and (ii) record and beneficial ownership with respect to their common stock; and

- the number of shares of our common stock held by and registered for resale by means of this prospectus for the Registered Stockholders.

The Registered Stockholders include (i) our affiliates and certain other stockholders with "restricted securities" (as defined in Rule 144 under the Securities Act) who, because of their status as affiliates pursuant to Rule 144 or because they acquired their common stock from an affiliate or us within the prior 12 months, would be unable to sell their securities pursuant to Rule 144 until we have been subject to the reporting requirements of Section 13 or Section 15(d) of the Exchange Act for a period of at least 90 days and (ii) our employees. The Registered Stockholders may, or may not, elect to sell their common stock covered by this prospectus, as and to the extent they may determine. The Registered Stockholders may offer, sell or distribute all or a portion of the shares of common stock hereby registered publicly or through private transactions at prevailing market prices or at negotiated prices. The Registered Stockholders may elect to sell their shares in connection with this Direct Listing and in market transactions following this Direct Listing. As such, we will have no input if and when any Registered Stockholder may, or may not, elect to sell their common stock or the prices at which any such sales may occur. See "*Plan of Distribution*."

Information concerning the Registered Stockholders may change from time to time and any changed information will be set forth in supplements to this prospectus, if and when necessary. Because the Registered Stockholders may sell all, some, or none of the common stock covered by this prospectus, we cannot determine the number of common stock that will be sold by the Registered Stockholders, or the amount or percentage of shares of common stock that will be held by the Registered Stockholders upon consummation of any particular sale. In addition, the Registered Stockholders listed in the table below may have sold, transferred, or otherwise disposed of, or may sell, transfer, or otherwise dispose of, at any time and from time to time, our common stock in transactions exempt from the registration requirements of the Securities Act, after the date on which they provided the information set forth in the table below.

The Registered Stockholders are not entitled to any registration rights with respect to the common stock. However, we currently intend to use our reasonable efforts to keep the registration statement effective for a period of 90 days after the effectiveness of the registration statement. We are not party to any arrangement with any Registered Stockholder or any broker-dealer with respect to sales of common stock by the Registered Stockholders. However, we will engage a financial advisor with respect to certain other matters relating to our listing. See "*Plan of Distribution*."

In accordance with the rules of the SEC, beneficial ownership includes voting or investment power with respect to securities and includes the common stock issuable pursuant to options and warrants that are exercisable or settled within 60 days of , 2023. Shares of common stock issuable pursuant to options and warrants are deemed outstanding for computing the percentage of the class beneficially owned by the person holding such securities but are not deemed outstanding for computing the percentage of the class beneficially owned by any other person. The percentage of beneficial ownership for the following table is based on total shares of common stock outstanding as of , 2023.

In the table below, the percentage of beneficial ownership prior to the effectiveness of the registration statement of which this prospectus forms a part is based on, as applicable: (i) 32,477,209 shares of our common stock outstanding as of , 2023, after giving effect to the Reverse Stock Split and (a) the automatic cancellation, in connection with the Direct Listing, of all of our outstanding Series A Preferred Stock, (b) the automatic conversion, in connection with the Direct Listing, of all of our outstanding non-voting common stock, on a one-for-one basis, into an aggregate of 28,230,842 shares of our common stock, (c) the automatic conversion, in connection with the Direct Listing, of all of our outstanding Series B Preferred Stock, on a one-for-one basis, into an aggregate of 4,171,445 shares of our common stock and (d) the automatic conversion, in connection with the Direct Listing, of all our outstanding Series B-1 Preferred Stock into an aggregate of 74,922 shares of our common stock; and (ii) 2,500 shares of our Series C Preferred Stock outstanding as of , 2023, after giving effect to the Reverse Stock Split.

Each share of our Series C Preferred Stock will be entitled to 13,000 votes per share upon the Direct Listing. The percentage of total voting power in the table below is based on, after giving effect to the transactions described in clause (i) and (ii) in the immediately preceding paragraph and the 13,000 votes per share of Series C Preferred Stock upon the Direct Listing, the sum of (i) 32,477,209 votes, being the total number of votes associated with the 32,477,209 shares of our common stock (with each share of common stock having one vote) and (ii) 32,500,000 votes, being the total number of votes associated with the 2,500 shares of Series C Preferred Stock (with each share of Series C Preferred Stock having 13,000 votes).

FibroGenesis is the beneficial owner of all of our outstanding Series A Preferred Stock (being an aggregate of 8,750,000 shares in number, after giving effect to the Reverse Stock Split), all of which outstanding Series A Preferred Stock will be automatically cancelled, without consideration, in connection with the Direct Listing. Other than such Series A Preferred Stock, all of which will be cancelled as aforesaid, FibroGenesis does not own any other shares of our capital stock.

The Registered Stockholders have not, nor have they within the past three years had, any position, office, or other material relationship with us, other than as disclosed in this prospectus. See "*Management's Discussion & Analysis of Financial Results and Condition*" and "*Certain Relationships and Related Party Transactions*" for further information regarding the Registered Stockholders. Unless otherwise indicated, the business address of each of the individuals and entities named below is c/o FibroBiologics, Inc., 455 E. Medical Center, Blvd., Suite 300, Houston, Texas 77598.

	Beneficial Ownership Prior to the Effectiveness of the Registration Statement					
	Common Stock		Series C Preferred Stock		Percentage of Total Voting Power[1]	Shares of Common Stock Being Registered Pursuant to this Prospectus
Name and address of Beneficial Owner	Shares	%	Shares	%		
5% Stockholders:						
Golden Knight Incorporated, L.P.[2]	2,125,001	6.5%	—	—	3.3%	218,351
Dan and Pam Linscomb[3]	1,627,219	5.0%	—	—	2.5%	1,627,219
Executive Officers and Directors						
Pete O'Heeron, MSHA[4]	6,048,147	18.6%	2,500	100%	59.3%	—
Mark Andersen, CPA CFA	—	—	—	—	—	—
Hamid Khoja, Ph.D.[5]	1,250	*	—	—	*	—
Robert Hoffman, CPA (inactive)[6]	7,500	*	—	—	*	—
Victoria Niklas, M.D.[7]	7,500	*	—	—	*	—
Richard Cilento, Jr., MBA[8]	93,225	*	—	—	*	—
Stacy Coen, MBA[9]	7,500	*	—	—	*	—
Matthew Link[10]	7,500	*	—	—	*	—
Directors and Executive Officers as a Group (8 persons)[11]	6,172,622	19.0%	2,500	100%	59.5%	—
Other Registered Stockholders:						
Non-Executive Officer Employees, Consultants and Service Providers	—	—	—	—	—	—
Keith Denner Rev Trust[12]	677,367	2.1%	—	—	1.0%	507,245
Benny Brown[13]	565,155	1.7%	—	—	*	455,856
Collins Partners Ltd[14]	506,802	1.6%	—	—	*	37,378
Michael M. Lavor[15]	497,754	1.5%	—	—	*	5,873
Global Energy Source Inc.[16]	465,744	1.4%	—	—	*	272,500
Mod Capital LLC[17]	403,799	1.2%	—	—	*	4,438
Mustasim Rumi[18]	350,280	1.1%	—	—	*	38,462
Mark Monical[19]	313,223	1.0%	—	—	*	183,956
Philip P. Lovell and Elizabeth G. Lovell[20]	212,803	*	—	—	*	154,890
James P. Doherty, III Trust Dated Nov 14, 2000[21]	189,868	*	—	—	*	91,250
Barchil Ltd Partnership[22]	66,077	*	—	—	*	66,077
David M Kavanagh[23]	251,574	*	—	—	*	92,557
Megan Doherty[24]	45,000	*	—	—	*	45,000
Sean Ryan Trust dtd 3/15/07[25]	106,579	*	—	—	*	44,822
Slade Lewis[26]	99,359	*	—	—	*	44,436
	98,600	*	—	—	*	62,167

Steven Caperton[27]						
Anthony J. Lydon[28]	105,044	*	—	—	*	44,379
Darrell Jones[29]	135,749	*	—	—	*	38,462
Lynn Davis DDS[30]	62,735	*	—	—	*	33,332
Avatar Investments, LLC[31]	132,164	*	—	—	*	24,424
Shanala Jap Investment Services LLLP[32]	22,333	*	—	—	*	22,333
Richard Keathley[33]	29,576	*	—	—	*	22,225
Sandra Lewis[34]	22,218	*	—	—	*	22,218
John Hillis[35]	79,081	*	—	—	*	22,190
StartEngine Capital LLC[36]	22,148	*	—	—	*	22,148
Jay Dempsey[37]	21,779	*	—	—	*	21,779
George Nesemeier[38]	75,486	*	—	—	*	19,231
J. David Taormino[39]	44,686	*	—	—	*	19,231
Ryan Tabloff[40]	18,677	*	—	—	*	18,677
Michael Jones[41]	46,618	*	—	—	*	17,752
William Austin[42]	17,752	*	—	—	*	17,752
Michael Moses[43]	17,752	*	—	—	*	17,752
Scott Dluzen[44]	16,346	*	—	—	*	16,346
Lynda Ludwig[45]	19,949	*	—	—	*	11,199
GNGI Investment Services LLLP[46]	11,000	*	—	—	*	11,000
Victor A Estrada[47]	143,543	*	—	—	*	9,764
Jerry Collins[48]	8,876	*	—	—	*	8,876
Ivan I Smith III[49]	25,412	*	—	—	*	8,506
James Sage[50]	8,506	*	—	—	*	8,506
Chris McCall[51]	8,387	*	—	—	*	8,387
Gladys E. Pierson[52]	8,250	*	—	—	*	8,250
Schnoy, LLC[53]	38,825	*	—	—	*	8,188
Marshall A. Lewis[54]	8,136	*	—	—	*	8,136
John Mai[55]	7,692	*	—	—	*	7,692
Barbara Peraskevas[56]	7,316	*	—	—	*	7,316
Sabio Viloria[57]	12,982	*	—	—	*	7,101
Chad Burns[58]	7,101	*	—	—	*	7,101
Greg Maher[59]	21,174	*	—	—	*	6,472
Robert J Anthony[60]	5,500	*	—	—	*	5,500
Steve Rice[61]	5,104	*	—	—	*	5,104
Rich Sangberg[62]	4,863	*	—	—	*	4,863
Charles Cadenhead[63]	4,808	*	—	—	*	4,808
RoboSpine LLC[64]	4,623	*	—	—	*	4,623
Ted Fowler[65]	52,421	*	—	—	*	4,582
J. Dickson Mappus[66]	29,893	*	—	—	*	4,438
Mark Drinkwater[67]	17,166	*	—	—	*	4,438
Darrin Shandley[68]	4,438	*	—	—	*	4,438
Mary Taormino[69]	4,438	*	—	—	*	4,438
Wichuta Prochnow[70]	4,068	*	—	—	*	4,068
Bart Pasternak[71]	3,938	*	—	—	*	3,938
Charles Read[72]	3,883	*	—	—	*	3,883
Sheryl Moses[73]	3,872	*	—	—	*	3,872
Robert Myers Retirement Plan-Roth[74]	3,750	*	—	—	*	3,750
Willam Ford[75]	41,865	*	—	—	*	3,551
Gloria Lopez[76]	1,480	*	—	—	*	1,480
Donna L Brown[77]	740	*	—	—	*	740
Jason D Sellers[78]	5,925	*	—	—	*	5,925
All Other Registered Stockholders[79]	609,940	1.9%	—	—%	*%	233,726
Total Number of Shares Being Registered						4,791,367

* Less than 1%.

(1) After giving effect to the rights of the Series C Preferred Stock, upon the Direct Listing, to 13,000 votes per share.

(2) The number of shares of common stock held consists of an aggregate of (i) 1,906,650 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 1,906,650 shares of common stock and (ii) 218,351 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 218,351 shares of common stock. Michael F. Newlin and Cindy L. Newlin, as General Partners of Golden Knight Incorporated, L.P., share discretionary authority to vote and dispose of the shares directly held by Golden Knight Incorporated, L.P. and may be deemed to be the beneficial owners of such shares. The address for Golden Knight Incorporated, L.P. is 3773 Howard Hughes Pkwy, Suite 500S, Las Vegas, NV 89189-6014.

(3) The number of shares of common stock held consists of 1,627,219 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into an aggregate of 1,627,219 shares of common stock. The address for Dan and Pam Linscomb is 5110 San Felipe St, #374, Houston, TX 77056.

(4) The number of shares of common stock held consists of 6,048,147 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 6,048,147 shares of common stock. The 2,500 shares of Series C Preferred Stock held constitute the maximum number of Series C Preferred Stock we are authorized to issue. Upon the Direct Listing, each share of Series C Preferred Stock will be entitled to 13,000 votes. For as long as they remain

outstanding, the Series C Preferred Stock will be subject to an irrevocable proxy issued by Pete O'Heeron in favor and for the benefit of our board of directors, as more particularly described in this prospectus.

(5) The number of shares of common stock held consists of 1,250 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into an aggregate of 1,250 shares of common stock.

(6) The number of shares of common stock held consists of 7,500 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into an aggregate of 7,500 shares of common stock.

(7) The number of shares of common stock held consists of 7,500 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into an aggregate of 7,500 shares of common stock.

(8) The number of shares of common stock held consists of 93,225 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into an aggregate of 93,225 shares of common stock.

(9) The number of shares of common stock held consists of 7,500 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into an aggregate of 7,500 shares of common stock

(10) The number of shares of common stock held consists of 7,500 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into an aggregate of 7,500 shares of common stock.

(11) The number of shares of common stock held consists of 6,172,622 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into an aggregate of 6,172,622 shares of common stock. The 2,500 shares of Series C Preferred Stock held constitute the maximum number of Series C Preferred Stock we are authorized to issue. Upon the Direct Listing, each share of Series C Preferred Stock will be entitled to 13,000 votes. For as long as they remain outstanding, the Series C Preferred Stock will be subject to an irrevocable proxy issued by Pete O'Heeron in favor and for the benefit of our board of directors, as more particularly described in this prospectus.

(12) The number of shares of common stock held consists of (i) 170,122 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into an aggregate of 170,122 shares of common stock and (ii) 507,245 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 507,245 shares of common stock. The address for the Keith Denner Rev Trust is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(13) The number of shares of common stock held consists of an aggregate of (i) 109,299 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 109,299 shares of common stock and (ii) 455,856 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 455,856 shares of common stock. The address for Benny Brown is 4338 N. Chapel Rd., Franklin, TN 37067.

(14) The number of shares of common stock held consists of an aggregate of (i) 469,424 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 469,424 shares of common stock, (ii) 20,711 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 20,711 shares of common stock, and (iii) 16,667 shares of Series B-1 Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 16,667 shares of common stock. The address for Collins Partners Ltd is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(15) The number of shares of common stock held in aggregate by Michael A. Lavor, Wildcat Navy LLLP, and Mission Management & Trust Co. FBO Michael M. Lavor SEP IRA with Michael A. Lavor as beneficiary consists of an aggregate of (i) 491,881 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 491,881 shares of common stock and (ii) 5,873 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 5,873 shares of common stock. The address for Michael A. Lavor is 3650 N Camino Ojo DeAgua, Tucson, AZ 85749.

(16) The number of shares of common stock held consists of 465,744 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 465,744 shares of common stock. The address for Global Energy Source Inc is 6233 N. 75th St, Scottsdale, AZ 85250.

(17) The number of shares of common stock held consists of an aggregate of (i) 399,361 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 399,361 shares of common stock and (ii) 4,438 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,438 shares of common stock. The address for Mod Capital LLC is 14840 Jolenta Ln, Elm Grove, WI 53122.

(18) The number of shares of common stock held in aggregate by Mustasim Rumi, MDR Strategic Investments, LLC, Quest IRA FBO Mustasim Rumi, Sarah V Investments, LLC, and Vendal-Rumi Irrevocable Trust with Mustasim Rumi as beneficiary consists of an aggregate of (i) 311,818 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 311,818 shares of common stock and (ii) 38,462 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 38,462 shares of common stock. The address for Mustasim Rumi is 5919 Bold Ruler Way, Austin, TX 78746.

(19) The number of shares of common stock held consists of an aggregate of (i) 129,267 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 129,267 shares of common stock and (ii) 183,956 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 183,956 shares of common stock. The address for Mark Monical is 78 Rosewood St, Lake Jackson, TX 77566.

(20) The number of shares of common stock held in aggregate by The Lovell Family Trust dated 3/12/02 and Vantage Roth IRA FBO Philip Lovell with Philip P. Lovell and Elizabeth G. Lovell as beneficiaries consists of an aggregate of (i) 194,163 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 194,163 shares of common stock and (ii) 18,640 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 18,640 shares of common stock. The address for Philip P. Lovell and Elizabeth G. Lovell is 4601 E. Foothill Drive, Paradise Valley, AZ 85253.

(21) The number of shares of common stock held consists of 189,868 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 189,868 shares of common stock. The address for James P. Doherty, III Trust Dated Nov 14, 2000 is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(22) The number of shares of common stock held consists of 66,077 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 66,077 shares of common stock. The address for Barchil Ltd Partnership is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(23) The number of shares of common stock held in aggregate by David Kavanagh, David M Kavanagh Trust, Dearborn Capital Management, Ltd., and David Kavanagh 2010 Trust with David M Kavanagh and family as beneficiary consists of an aggregate of (i) 159,017 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 159,017 shares of common stock and (ii) 92,557 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 92,557 shares of common stock. The address for David M Kavanagh is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(24) The number of shares of common stock held consists of 45,000 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 45,000 shares of common stock. The address for Megan Doherty is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(25) The number of shares of common stock held consists of an aggregate of (i) 61,757 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 61,757 shares of common stock and (ii) 44,822 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 44,822 shares of common stock. The address for Sean Ryan Trust dtd 3/15/07 is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(26) The number of shares of common stock held consists of an aggregate of (i) 54,923 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 54,923 shares of common stock and (ii) 44,436 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 44,436 shares of common stock. The address for Slade Lewis is 501 Hunters Lane, Friendswood, TX 77546.

(27) The number of shares of common stock held in aggregate by Steven Caperton and Painted River Royalties LLC with Steven Caperton as beneficiary consists of an aggregate of (i) 36,433 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 36,433 shares of common stock and (ii) 62,167 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 62,167 shares of common stock. The address for Steven Caperton is 1855 Painted River Rd, Valley Mills, TX 76689.

(28) The number of shares of common stock held in aggregate by Anthony J. Lydon and Anthony J. Lydon Living Trust with Anthony J. Lydon as beneficiary consists of an aggregate of (i) 60,665 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 60,665 shares of common stock and (ii) 44,379 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 44,379 shares of common stock. The address for Anthony J. Lydon is 4300 E. Camelback Rd, Ste 100, Phoenix, AZ 85018.

(29) The number of shares of common stock held in aggregate by Darrell Jones and Darrell Matthew Jones Trust with Darrell Jones as beneficiary consists of an aggregate of (i) 97,287 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 97,287 shares of common stock and (ii) 38,462 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 38,462 shares of common stock. The address for Darrell Jones is PO Box 68, Sedan, Kansas 67361.

(30) The number of shares of common stock held consists of an aggregate of (i) 29,403 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 29,403 shares of common stock and (ii) 33,332 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 33,332 shares of common stock. The address for Lynn Davis DDS is 19 Ellis Rd, League City, TX 77573.

(31) The number of shares of common stock held in aggregate by Avatar Investments, LLC, with Galen Miler as beneficiary consists of an aggregate of (i) 107,740 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 107,740 shares of common stock and (ii) 24,424 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 24,424 shares of common stock. The address for Galen Miler is 20539 N. Bear Canyon Ct., Surprise, AZ 85387.

(32) The number of shares of common stock held consists of 22,333 shares of Series B-1 Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 22,333 shares of common stock. The address for Shanala Jap Investment Services LLLP is 5995 E Grant Rd, Suite 200, Tucson, AZ 85712.

(33) The number of shares of common stock held consists of an aggregate of (i) 7,351shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 7,351 shares of common stock and (ii) 22,225 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 22,225 shares of common stock. The address for Richard Keathley is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(34) The number of shares of common stock held consists of 22,218 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 22,218 shares of common stock. The address for Sandra Lewis is 204 Hidden Pines Ct, League City, TX 77573.

(35) The number of shares of common stock held consists of an aggregate of (i) 56,891 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 56,891 shares of common stock and (ii) 22,190 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 22,190 shares of common stock. The address for John Hillis is 400 Russell Park, Davis, CA 95616.

(36) The number of shares of common stock held consists of 22,148 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 22,148 shares of common stock. The address for StartEngine Capital LLC is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(37) The number of shares of common stock held consists of 21,779 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 21,779 shares of common stock. The address for Jay Dempsey is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(38) The number of shares of common stock held consists of an aggregate of (i) 56,255 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 56,255 shares of common stock and (ii) 19,231 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 19,231 shares of common stock. The address for George Nesemeier is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(39) The number of shares of common stock held consists of an aggregate of (i) 25,455 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 25,455 shares of common stock and (ii) 19,231 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 19,231 shares of common stock. The address for J. David Taormino is 429 F Street, #5, Davis, CA 95616.

(40) The number of shares of common stock held consists of 18,677 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 18,677 shares of common stock. The address for Ryan Tabloff is 7343 E Claremont, Scottsdale, AZ 85250.

(41) The number of shares of common stock held consists of an aggregate of (i) 28,866 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 28,866 shares of common stock and (ii) 17,752 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 17,752 shares of common stock. The address for Michael Jones is 234 Road 20, Sedan, KS 67631.

(42) The number of shares of common stock held consists of 17,752 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 17,752 shares of common stock. The address for William Austin is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(43) The number of shares of common stock held consists of 17,752 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 17,752 shares of common stock. The address for Michael Moses is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(44) The number of shares of common stock held consists of 16,346 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 16,346 shares of common stock. The address for Scott Dluzen is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(45) The number of shares of common stock held consists of an aggregate of (i) 8,750 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 8,750 shares of common stock and (ii) 11,199 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 11,199 shares of common stock. The address for Lynda Ludwig is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(46) The number of shares of common stock held consists of 11,000 shares of Series B-1 Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 11,000 shares of common stock. The address for GNGI Investment Services LLLP is 5995 E Grant Rd, Suite 200, Tucson, AZ 85712.

(47) The number of shares of common stock held in aggregate by Madison Trust Company, Custodian FBO Victor Estrada M1604015 and Victor A Estrada GST with Victor A Estrada as beneficiary consists of an aggregate of (i) 133,779 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 133,779 shares of common stock and (ii) 9,764 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 9,764 shares of common stock. The address for Victor A Estrada is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(48) The number of shares of common stock held consists of 8,876 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 8,876 shares of common stock. The address for Jerry Collins is 15604 E. Chicory Dr., Fountain Hills, AZ 85268.

(49) The number of shares of common stock held consists of an aggregate of (i) 16,906 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 16,906 shares of common stock and (ii) 8,506 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 8,506 shares of common stock. The address for Ivan I Smith III is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(50) The number of shares of common stock held consists of 8,506 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 8,506 shares of common stock. The address for James Sage is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(51) The number of shares of common stock held consists of 8,387 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 8,387 shares of common stock. The address for Chris McCall is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(52) The number of shares of common stock held consists of 8,250 shares of Series B-1 Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 8,250 shares of common stock. The address for Gladys E. Pierson is 122 West Davis Street, Ste 110, Conroe, TX 77301.

(53) The number of shares of common stock held consists of an aggregate of (i) 30,637 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 30,637 shares of common stock and (ii) 8,188 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 8,188 shares of common stock. The address for Schnoy, LLC is 7441 E. Calle Cabo, Tucson, AZ 85750.

(54) The number of shares of common stock held consists of 8,136 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 8,136 shares of common stock. The address for Marshall A. Lewis is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(55) The number of shares of common stock held consists of 7,692 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 7,692 shares of common stock. The address for John Mai is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(56) The number of shares of common stock held consists of 7,316 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 7,316 shares of common stock. The address for Barbara Peraskevas is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(57) The number of shares of common stock held consists of an aggregate of (i) 5,881 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 5,881 shares of common stock and (ii) 7,101 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 7,101 shares of common stock. The address for Sabio Viloria is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(58) The number of shares of common stock held consists of 7,101 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 7,101 shares of common stock. The address for Chad Burns is 215 Magnolia Ridge Pl, Apt 206, Dothan, AL 36303.

(59) The number of shares of common stock held in aggregate by Greg Maher and Vantage FBO Gregory Maher IRA with Gergory Maher as beneficiary consists of an aggregate of (i) 14,702 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 14,702 shares of common stock and (ii) 6,472 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 6,472 shares of common stock. The address for Greg Maher is 13020 N 82nd Street, Scottsdale, AZ 85260.

(60) The number of shares of common stock held consists of 5,500 shares of Series B-1 Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 5,500 shares of common stock. The address for Robert J Anthony is 661 Bering Dr, Unit 602, Houston, TX 77057.

(61) The number of shares of common stock held consists of 5,104 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 5,104 shares of common stock. The address for Steve Rice is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(62) The number of shares of common stock held consists of 4,863 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,863 shares of common stock. The address for Rich Sangberg is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(63) The number of shares of common stock held consists of 4,808 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,808 shares of common stock. The address for Charles Cadenhead is 2303 County Road 582A, Brazoria, TX 77422.

(64) The number of shares of common stock held consists of 4,623 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,623 shares of common stock. The address for RoboSpine LLC is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(65) The number of shares of common stock held in aggregate by Ted Fowler, 2Xd Productions 401K FBO Ted Fowler, and Vantage Retirement Ted Fowler with Ted Fowler as beneficiary consists of an aggregate of (i) 47,839 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 47,839 shares of common stock and (ii) 4,582 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,582 shares of common stock. The address for Ted Fowler is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(66) The number of shares of common stock held consists of an aggregate of (i) 25,455 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 25,455 shares of common stock and (ii) 4,438 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,438 shares of common stock. The address for J. Dickson Mappus is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(67) The number of shares of common stock held consists of an aggregate of (i) 12,728 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 12,728 shares of common stock and (ii) 4,438 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,438 shares of common stock. The address for Mark Drinkwater is 7715 E. Montebello Ave, Scottsdale, AZ 85250.

(68) The number of shares of common stock held consists of 4,438 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,438 shares of common stock. The address for Darrin Shandley is 1540 Wildcat Drive, Portland, TX 78374.

(69) The number of shares of common stock held consists of 4,438 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,438 shares of common stock. The address for Mary Taormino is 615 Buchanan St, Davis, CA 95616.

(70) The number of shares of common stock held consists of 4,068 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 4,068 shares of common stock. The address for Wichuta Prochnow is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(71) The number of shares of common stock held consists of 3,938 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 3,938 shares of common stock. The address for Bart Pasternak is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(72) The number of shares of common stock held consists of 3,883 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 3,883 shares of common stock. The address for Charles Read is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(73) The number of shares of common stock held consists of 3,872 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 3,872 shares of common stock. The address for Sheryl Moses is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(74) The number of shares of common stock held consists of 3,750 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 3,750 shares of common stock. The address for Robert Myers Retirement Plan-Roth is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(75) The number of shares of common stock held consists of an aggregate of (i) 38,314 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 38,314 shares of common stock and (ii) 3,551 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 3,551 shares of common stock. The address for William Ford is c/o FibroBiologics, 455 E Medical Center Blvd, Ste 300, Houston, TX 77598.

(76) The number of shares of common stock held consists of 1,480 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 1,480 shares of common stock. The address for Gloria E Lopez is 4330 N. Chapel Rd, Franklin, TN 37067.

(77) The number of shares of common stock held consists of 740 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 740 shares of common stock. The address for Donna L Brown is 1292 Greenbrier Road, West Sacramento, CA 95691.

(78) The number of shares of common stock held consists of 5,925 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 5,925 shares of common stock. The address for Jason D Sellers is PO Box 41504, Nashville, TN 37204.

(79) The number of shares of common stock held by 675 shareholders consists of an aggregate of (i) 376,214 shares of non-voting common stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 376,214 shares of common stock, (ii) 222,554 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 222,554 shares of common stock, and (ii) 11,172 shares of Series B Preferred Stock which, in connection with the Direct Listing, will automatically convert, on a one-for-one basis, into 11,172 shares of common stock. The combined voting power of these shares to be registered in connection with the Direct Listing is less than 1% of the Total Voting Power.

DESCRIPTION OF CAPITAL STOCK

General

The following description summarizes certain important terms of our capital stock, as they are expected to be in effect in connection with the effectiveness of the registration statement of which this prospectus forms a part. We expect to adopt an amended and restated certificate of incorporation and an amended and restated bylaws that will become effective in connection with the effectiveness of the registration statement of which this prospectus forms a part, and this description summarizes the provisions that are expected to be included in such documents. Because it is only a summary, it does not contain all the information that may be important to you. For a complete description of the matters set forth in this section titled "*Description of Capital Stock*," you should refer to our amended and restated certificate of incorporation and our amended and restated bylaws, which are included as exhibits to the registration statement of which this prospectus forms a part, and to the applicable provisions of Delaware law.

In connection with the Direct Listing, (i) all of our then outstanding Series A Preferred Stock, all of which are held by FibroGenesis, will be automatically canceled without the payment of additional consideration by or to the holder thereof, (ii) all of our then outstanding non-voting common stock will automatically convert, without the payment of additional consideration by or to the holder thereof, into common stock, on a one-for-one basis, (iii) all of our then outstanding Series B Preferred Stock and all of our then outstanding Series B-1 Preferred Stock will automatically convert, without the payment of additional consideration by or to the holder thereof, into common stock, on a one-for-one basis and (iv) all of our then outstanding Series C Preferred Stock will remain Series C Preferred Stock, such that, immediately after the Direct Listing, our issued and outstanding capital stock will consist of common stock and Series C Preferred Stock.

Upon consummation of the Direct Listing, after giving effect to the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws, we will be authorized to issue 110,000,000 shares of capital stock, which will consist of: (i) 100,000,000 shares of common stock, par value $0.00001 per share and (ii) 10,000,000 shares of preferred stock, par value $0.00001 per share, of which 2,500 shares are designated as Series C Preferred Stock.

After giving effect to the Reverse Stock Split and the automatic conversion, in connection with the Direct Listing, of all of our then outstanding non-voting common stock and convertible preferred stock (being our Series B Preferred Stock and Series B-1 Preferred Stock), as of September 30, 2023, there were 32,477,209 shares of our common stock outstanding, held by 1,178 stockholders of record, and 2,500 shares of our Series C Preferred Stock, being all of the authorized Series C Preferred Stock, outstanding, held by one stockholder of record. Pursuant to our amended and restated certificate of incorporation, our board of directors will have the authority, without stockholder approval except as required by Nasdaq rules, to issue additional shares of our capital stock.

Common Stock

Our amended and restated certificate of incorporation will provide that**:**

- holders of common stock will have voting rights for the election of our directors and all other matters requiring stockholder action, except with respect to amendments to our certificate of incorporation that alter or change the powers, preferences, rights or other terms of any outstanding preferred stock if the holders of such affected series of preferred stock are entitled to vote on such an amendment;

- holders of common stock will be entitled to one vote per share on matters to be voted on by stockholders and also will be entitled to receive such dividends, if any, as may be declared from time to time by our board of directors in its discretion out of funds legally available therefor;

- the payment of dividends, if any, on the common stock will be subject to the prior payment of dividends on any outstanding preferred stock;

- upon our liquidation or dissolution, the holders of common stock will be entitled to receive *pro rata* all assets remaining available for distribution to stockholders after payment of all liabilities and provision for the liquidation of any shares of preferred stock outstanding at that time; and

- our stockholders have no conversion, preemptive or other subscription rights and there are no sinking fund or redemption provisions applicable to the common stock.

Preferred Stock

Our amended and restated certificate of incorporation will provide that shares of preferred stock may be issued from time to time in one or more series. Our board of directors will be authorized to fix the voting rights, if any, designations, powers, preferences, the relative, participating, optional or other special rights, if any, and any qualifications, limitations and restrictions thereof, applicable to the shares of each series. Our board of directors will be able to, without stockholder approval, issue preferred stock with voting and other rights that could adversely affect the voting power and other rights of the holders of the common stock and could have anti-takeover effects. The ability of our board of directors to issue preferred stock without stockholder approval could have the effect of delaying, deferring or preventing a change of our control or the removal of our existing management.

Series C Preferred Stock

Upon consummation of the Direct Listing, there will be one series of designated preferred stock, being the Series C Preferred Stock, 2,500 total shares of which are authorized and all of which 2,500 authorized shares of Series C Preferred Stock will be issued, outstanding and held by Pete O'Heeron, our founder, Chief Executive Officer and Chairperson of our board of directors. The outstanding shares of Series C Preferred Stock are fully paid and nonassessable.

The Series C Preferred Stock shall rank senior to our common stock upon our liquidation, dissolution, winding up or otherwise.

Upon consummation of the Direct Listing, the Series C Preferred Stock shall be entitled to vote on any matter to be voted on by our stockholders, in each case voting together with the holders of our common stock as a single class, and each share of Series C Preferred Stock shall be entitled to 13,000 votes. The Series C Preferred Stock shall be entitled to receive the same prior notice of any meeting of stockholders as provided to our common stockholders.

The Series C Preferred Stock shall not be entitled to any dividend, whether payable in cash, stock or property.

Subject to the superior rights of other, then outstanding, classes or series of preferred stock, in the event of any liquidation, dissolution or winding up of our company, the Series C Preferred Stock shall be entitled to receive, prior and in preference to any distribution in such liquidation, dissolution or winding up of any of our assets to the holders of our common stock, a liquidation preference of $18.00 per share (subject to appropriate adjustment in the event of any stock split, combination or other similar recapitalization).

The Series C Preferred Stock may be converted at any time as follows:

- At the option of the holder, a share of Series C Preferred Stock may be converted into one share of our common stock; and
- Upon the election of the holders of a majority of the then outstanding shares of Series C Preferred Stock, all outstanding shares of Series C Preferred Stock may be converted into an equal number of shares of our common stock, on a one-for-one basis.

In addition, the Series C Preferred Stock is subject to a mandatory conversion upon any transfer of the Series C Preferred Stock. Each share of Series C Preferred Stock shall automatically convert, without the payment of additional consideration by or to the holder thereof, into one fully paid and non-assessable share of our common stock, upon any transfer of any share of Series C Preferred Stock, whether or not for value. Any shares of Series C Preferred Stock converted as described above must be retired and cancelled and may not be reissued as shares of such series.

For as long as the Series C Preferred Stock remain outstanding, the aggregate number of shares of Series C Preferred Stock then outstanding, shall be proportionately adjusted for any increase or decrease in the number of issued shares of our common Stock resulting from a subdivision or combination of our common stock or other similar recapitalization, in each case effected without our receipt of consideration.

The Series C Preferred Stock will be subject to an irrevocable proxy issued by Pete O'Heeron, the holder of all of the Series C Preferred Stock, in favor and for the benefit of, our board of directors, granting our board of directors the irrevocable proxy, for as long as the Series C Preferred Stock remain outstanding, to vote all of the Series C Preferred Stock on all matters on which the Series C Preferred Stock are entitled to vote, in any manner that our board of directors may determine in its sole and absolute discretion; provided, however, that such irrevocable proxy shall not, without the written consent of Pete O'Heeron, permit our board of directors to vote the Series Preferred Stock with respect to any proposal to amend, delete or waive any rights of Pete O'Heeron with respect to the Series C Preferred Stock as set forth in our amended and restated certificate of incorporation. In light of the superior voting rights associated with the Series C Preferred Stock, the irrevocable proxy is intended to ensure that such superior voting rights are utilized in our best interest and to avoid or mitigate conflicts that may arise in the future for Pete O'Heeron as an individual stockholder employee.

Anti-Takeover Effects of our Certificate of Incorporation, Bylaws and Delaware Law

Our amended and restated certificate of incorporation and amended and restated bylaws will include a number of provisions that may have the effect of delaying, deferring or preventing another party from acquiring control of us and encouraging persons considering unsolicited tender offers or other unilateral takeover proposals to negotiate with our board of directors rather than pursue non-negotiated takeover attempts. These provisions include the items described below.

Classified Board

Our amended and restated certificate of incorporation will require our board of directors to be divided into three classes serving staggered three-year terms, with one class elected each year. The classification of directors has the effect of making it more difficult for stockholders to change the composition of our board of directors.

Stockholder Actions by Written Consent

Our amended and restated certificate of incorporation will require that, any action required or permitted to be taken by our stockholders must be effected at a duly-called annual or special meeting of our stockholders and may not be effected by written consent in lieu of a meeting.

Advance Notice Requirements

Our amended and restated bylaws will establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or new business to be brought before meetings of our stockholders. These procedures will specify that notice of stockholder proposals must be timely given in writing to our corporate secretary prior to the meeting at which the action is to be taken, and define what is considered timely. Our amended and restated bylaws will also specify the requirements as to form and content of all stockholder notices. These requirements may preclude stockholders from bringing matters before the stockholders at an annual or special meeting.

Director Removal and Vacancies

Our amended and restated certificate of incorporation will require that, a member of our board of directors or our entire board may only be removed for cause, and then only by the affirmative vote of the holders of at least $66^{2/3}$% in voting power of our stock entitled to vote on such removal. In addition, our amended and restated certificate of incorporation will require that, any newly created directorship that results from an increase in the number of directors or any vacancy on our board of directors, must be filled solely by the affirmative vote of a majority of the total number of directors then in office, even if less than a quorum, or by a sole remaining director and may not be filled by the stockholders.

Supermajority Voting Requirements

Our amended and restated certificate of incorporation will require the affirmative vote of the holders of at least $66^{2/3}$% in voting power of our stock entitled to vote thereon to (i) amend, alter or repeal our bylaws and adopt new bylaws or (ii) to amend, alter, change or repeal, or adopt any provision inconsistent with, certain provisions of our certificate of incorporation, including the provisions relating to the requirement to have a classified board, the provisions relating to the removal of directors, the provision precluding stockholder action by written consent and the choice of forum provision in our amended and restated certificate of incorporation (as explained below).

Undesignated Preferred Stock

Our amended and restated certificate of incorporation will provide for authorized shares of preferred stock. The existence of authorized but unissued shares of preferred stock may enable our board of directors to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise. For example, if in the due exercise of its fiduciary obligations, our board of directors were to determine that a takeover proposal is not in the best interests of our shareholders, our board of directors could cause shares of preferred stock to be issued without shareholder approval in one or more private offerings or other transactions that might dilute the voting or other rights of the proposed acquirer or insurgent shareholder or shareholder group. In this regard, our amended and restated certificate of incorporation will grant our board of directors broad power to establish the rights and preferences of authorized and unissued shares of preferred stock. The issuance of shares of preferred stock could decrease the amount of earnings and assets available for distribution to holders of shares of common stock. The issuance may also adversely affect the rights and powers, including voting rights, of these holders and may have the effect of delaying, deterring or preventing a change in our control.

Exclusive Forum

Our amended and restated certificate of incorporation will provide that, unless we consent in writing to the selection of an alternative forum, the (i) Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware) shall, to the fullest extent permitted by law, be the sole and exclusive forum for (a) any derivative action or proceeding brought on our behalf, (b) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (c) any action arising pursuant to any provision of the DGCL, our certificate of incorporation or our bylaws or (d) any action asserting a claim governed by the internal affairs doctrine and (ii) to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause or causes of action arising under the Securities Act, including all causes of action asserted against any defendant to such complaint. The foregoing provision would not preclude stockholders that assert claims under the Exchange Act from bringing such claims in federal court, to the extent that the Exchange Act confers exclusive federal jurisdiction over such claims, subject to applicable law. Our choice of forum provision may impose additional litigation costs on stockholders in pursuing claims and may limit a stockholder's ability to bring a claim in a judicial forum that it believes to be favorable for disputes with us or any of our directors, officers or other employees, which may discourage lawsuits with respect to such claims.

Limitation of Liability and Indemnification of Directors and Officers

Our amended and restated bylaws will provide that our directors and officers will be indemnified by us to the fullest extent authorized by Delaware law.

These provisions may discourage stockholders from bringing a lawsuit against our directors for breach of their fiduciary duty. These provisions also may have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit us and our stockholders. Furthermore, a stockholder's investment may be adversely affected to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions. We believe that these provisions and insurance are necessary to attract and retain talented and experienced directors and officers. In addition, in connection with the effectiveness of the registration statement of which this prospectus forms a part, we intend to enter into separate indemnification agreements with each of our directors and executive officers.

Section 203 of the DGCL

As a Delaware corporation, we will be subject to the provisions of Section 203 of the DGCL. This statute prevents certain Delaware corporations, under certain circumstances, from engaging in a "business combination" with an "interested stockholder." In general, Section 203 defines an "interested stockholder" as an entity or person who, together with the person's affiliates and associates, beneficially owns 15% or more of the outstanding voting stock of the corporation.

A "business combination" includes a merger or sale of more than 10% of our assets. However, the above provisions of Section 203 of the DGCL do not apply if:

- the business combination takes place more than three years after the interested stockholder became an "interested stockholder;"
- our board of directors approves the transaction that made the stockholder an "interested stockholder" prior to the date of the transaction;
- after the completion of the transaction that resulted in the stockholder becoming an interested stockholder, that stockholder owned at least 85% of our voting stock outstanding, other than statutorily excluded shares of common stock; or
- on or subsequent to the date of the transaction, the business combination is approved by our board of directors and authorized at a meeting of our stockholders, and not by written consent, by an affirmative vote of at least two-thirds of the outstanding voting stock not owned by the interested stockholder.

Listing

We have applied to list our common stock on the Nasdaq Global Market under the symbol "FBLG".

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is VStock Transfer LLC. The transfer agent and registrar's address is 18 Lafayette Place, Woodmere, NY 11598. The transfer agent and registrar can be contacted by phone at: (212) 828-8436.

SHARES ELIGIBLE FOR FUTURE SALE

Prior to the listing of our common stock on Nasdaq, there has been no public market for our common stock. Sales of a substantial number of shares our common stock in the public market following our listing on Nasdaq, or the perception that such sales could occur, could adversely affect the public price of our common stock and may make it more difficult for you to sell your shares at a time and price that you deem appropriate. We will have no input if and when any Registered Stockholders may, or may not, elect to sell their shares or the prices at which any such sales may occur.

After the Direct Listing, a total of 32,477,209 shares of our common stock will be outstanding, including 4,791,367 shares of our common stock registered for resale under the registration statement of which this prospectus forms a part. Any shares not registered hereunder will be "restricted securities," as that term is defined in Rule 144 under the Securities Act. These restricted securities are eligible for public sale only if they are registered under the Securities Act, including, but not limited to, the shares registered hereunder, or if they qualify for an exemption from registration, including under Rules 144 or 701 under the Securities Act, which are summarized below. Restricted securities also may be sold outside of the United States to non-U.S. persons in accordance with Rule 904 of Regulation S. With the exception of shares owned by our directors, officers and certain stockholders, substantially all of our common stock may be sold after our initial listing on Nasdaq, either by the Registered Stockholders pursuant to this prospectus or by our other existing stockholders in accordance with Rule 144 of the Securities Act.

Rule 144

In general, under Rule 144 as currently in effect, once we have been subject to and in compliance with public company reporting requirements of Section 13 or Section 15(d) of the Exchange Act for at least 90 days, an eligible shareholder is entitled to sell such shares without complying with the manner of sale, volume limitation, or notice provisions of Rule 144, subject to compliance with the public information requirements of Rule 144. To be an eligible shareholder under Rule 144, such shareholder must not be deemed to have been one of our affiliates for purposes of the Securities Act at any time during the 90 days preceding a sale and who has beneficially owned the shares of common stock proposed to be sold for at least six months, including the holding period of any prior owner other than our affiliates. If such a person has beneficially owned the shares of common stock proposed to be sold for at least one year, including the holding period of any prior owner other than our affiliates, then such person is entitled to sell such shares without complying with any of the requirements of Rule 144.

In general, under Rule 144, as currently in effect, our affiliates or persons selling common stock on behalf of our affiliates are entitled to sell shares 90 days after we become a reporting company. Within any three-month period, such shareholders may sell a number of shares that does not exceed the greater of:

- 1% of the number of shares of common stock then outstanding, which will equal approximately shares immediately after our registration; or
- the average weekly trading volume of our common stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

Sales under Rule 144 by our affiliates or persons selling shares of common stock on behalf of our affiliates also are subject to certain manner of sale provisions and notice requirements and to the availability of current public information about us.

Rule 701

Rule 701 generally allows a shareholder who was issued shares under a written compensatory plan or contract and who is not deemed to have been our affiliate during the immediately preceding 90 days, to sell these shares in reliance on Rule 144, but without being required to comply with the public information, holding period, volume limitation, or notice provisions of Rule 144. Rule 701 also permits our affiliates to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. All holders of Rule 701 shares, however, are required by that rule to wait until 90 days after we become a reporting company before selling those shares under Rule 701.

Registration Statements on Form S-8

We intend to file one or more registration statements on Form S-8 under the Securities Act to register shares of our common stock subject to outstanding stock options or reserved for issuance under our 2022 Stock Plan, as soon as permitted under the Securities Act. Such registration statements will automatically become effective upon filing with the SEC. However, shares registered on Form S-8 may be subject to the volume limitations and the manner of sale, notice, and public information requirements of Rule 144.

SALE PRICE HISTORY OF OUR CAPITAL STOCK

We have applied to list our common stock on Nasdaq. Prior to the listing of our common stock on Nasdaq, there has been no public market for our common stock. Our common stock has a limited history of trading in private transactions. In December 2022, we issued an aggregate of the equivalent of 381,658 shares of Series B Preferred Stock to investors in a private placement, at a price the equivalent of $6.76 per share as to the equivalent of 318,049 shares, with the remaining equivalent of 63,609 shares being bonus shares. The bonus shares were issued to investors that sent payment within one week of signing the subscription agreement. From February 2023 through April 2023, we issued an aggregate of the equivalent of 890,310 shares of Series B Preferred Stock to investors in a Regulation Crowdfunding offering, at a price the equivalent of $6.76 per share as to the equivalent of 724,937 shares, with the remaining equivalent of 143,225 shares and equivalent of 22,148 shares being bonus shares and commission payment shares, respectively. The bonus shares were issued in accordance with the offering to investors that met either one, or a combination, of loyalty, early-bird timing, amount-based, and/or StartEngine owners' bonus requirements. Existing shareholders of FibroBiologics who invested in the Regulation Crowdfunding offering received loyalty 10% bonus shares. Investors who invested at least $1,000 within the first two weeks of the Regulation Crowdfunding offering received timing-based 5% bonus shares. Investors who invested at least $25,000 within the first 72 hours of the Regulation Crowdfunding offering received timing-based 10% bonus shares. Investors who invested at least $25,000 in the Regulation Crowdfunding offering received amount-based 5% bonus shares. Investors who invested at least $100,000 in the Regulation Crowdfunding offering received amount-based 10% bonus shares. Investors who were eligible for the StartEngine Crowdfunding Inc. OWNer's bonus received 10% bonus shares. Investors in the Regulation Crowdfunding offering received the highest amount-based or timing-based bonus for which they were eligible and the loyalty bonus and OWNer's bonus for which they were eligible. In March and April 2023, we issued the equivalent of 1,680,084 shares of Series B Preferred Stock to investors in private placements, at a price the equivalent of $6.76 per share as to the equivalent of 1,527,349 shares, with the remaining equivalent of 152,735 shares being bonus shares. The bonus shares were issued to investors that sent payment within one week of signing the subscription agreement. From April 2023 through September 2023, we issued in a private placement the equivalent of 74,922 shares of Series B-1 Preferred Stock to investors in a private placement, at prices ranging from the equivalent of $18.00 to $20.00 per share as to the equivalent of 64,070 shares, with the remaining equivalent of 10,852 shares being bonus shares. The bonus shares were issued to investors that sent payment within one week of signing the subscription agreement. In connection with a portion of such private placement of our Series B-1 Preferred Stock, we also agreed to issue warrants, exercisable for a period of three years from their issuance date, to purchase an aggregate of the equivalent of an aggregate of 8,890 shares of our common stock at an exercise price of the equivalent of $20.00 per share. While the Advisor is expected to consider this information in connection with setting the opening public price of our common stock, this information may have little or no relation to broader market demand for our common stock and thus the opening public price and subsequent public price of our common stock on Nasdaq. As a result, you should not place undue reliance on these historical private sale prices as it may differ materially from the opening public price and subsequent public price of our common stock on Nasdaq.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following is a general discussion of material U.S. federal income tax considerations and certain U.S. federal estate tax considerations relating to the acquisition, ownership, and disposition of our common stock applicable to non-U.S. holders that purchase our common stock in this offering and hold it as a "capital asset" within the meaning of Section 1221 of the U.S. Internal Revenue Code of 1986, as amended, or the Code (generally, property held for investment). For purposes of this discussion, a "non-U.S. holder" means a beneficial owner of our common stock (other than an entity or arrangement that is treated as a partnership for U.S. federal income tax purposes) that is not, for U.S. federal income tax purposes, any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation (or entity treated as a corporation for United States federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is includable in gross income for U.S. federal income tax purposes regardless of its source; or
- a trust if (i) a court within the United States is able to exercise primary supervision over the administration of the trust and one or more "United States persons," as defined under the Code, or U.S. persons, have the authority to control all substantial decisions of the trust or (ii) such trust has made a valid election to be treated as a U.S. person for U.S. federal income tax purposes.

If a partnership (or other entity or arrangement treated as a partnership for U.S. federal income tax purposes) holds our common stock, the tax treatment of a partner therein will generally depend on the status of the partner and the activities of the partnership. Partners of a partnership holding our common stock should consult their tax advisors as to the particular U.S. federal income tax consequences applicable to them.

This discussion is based on current provisions of the Code, final, temporary and proposed Treasury regulations promulgated thereunder, or the Treasury Regulations, judicial decisions, published rulings and administrative pronouncements of the U.S. Internal Revenue Service, or IRS, all as in effect as of the date of this prospectus and all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any change could alter the tax consequences to non-U.S. holders described herein. There can be no assurance that the IRS will not challenge one or more of the tax consequences described herein.

This discussion does not address all aspects of U.S. federal income and estate taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances nor does it address any aspects of U.S. state, local or non-U.S. taxes, other U.S. federal tax, the alternative minimum tax, or the unearned income Medicare contribution tax on net investment income. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

- banks, insurance companies and other financial institutions;
- brokers or dealers or traders in securities;
- tax-exempt organizations;
- pension plans;
- persons who hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment or who have elected to mark securities to market;
- controlled foreign corporations, passive foreign investment companies, and corporations that accumulate earnings to avoid U.S. federal income tax;
- non-U.S. governments; and
- U.S. expatriates and former citizens or long-term residents of the United States.

THIS SUMMARY IS NOT INTENDED TO CONSTITUTE A COMPLETE DESCRIPTION OF ALL TAX CONSEQUENCES FOR NON-U.S. HOLDERS RELATING TO THE OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK. PROSPECTIVE HOLDERS OF OUR COMMON STOCK SHOULD CONSULT WITH THEIR TAX ADVISORS REGARDING THE TAX CONSEQUENCES TO THEM (INCLUDING THE APPLICATION AND EFFECT OF ANY STATE, LOCAL, NON-U.S. INCOME AND OTHER TAX LAWS) OF THE ACQUISITION, OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK.

Distributions

As discussed under "*Dividend Policy*" above, we do not expect to make distributions on our common stock in the foreseeable future. However, if we do make distributions of cash or property on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts of distributions not treated as dividends for U.S. federal income tax purposes will first constitute a tax-free return of capital of the non-U.S. holder's investment and be applied against and reduce a non-U.S. holder's adjusted tax basis in its common stock, but not below zero. Any remaining excess will be treated as capital gain and will be treated as described below under "*Gain on Sale or Other Disposition of Common Stock*." Because we may not know the extent to which a distribution is a dividend for U.S. federal income tax purposes at the time it is made, for purposes of the withholding rules discussed below we or the applicable withholding agent may treat the entire distribution as a dividend. Any such distributions will also be subject to the discussions below under the headings "*FATCA*" and "*Backup Withholding, Information Reporting and Other Reporting Requirements*."

Subject to the discussion in the next two paragraphs, dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

Dividends we pay to a non-U.S. holder that are effectively connected with such non-U.S. holder's conduct of a trade or business within the United States (and, if required by an applicable tax treaty, are attributable to a U.S. permanent establishment or a fixed base maintained by such non-U.S. holder) will generally be exempt from the U.S. federal withholding tax described above, if the non-U.S. holder complies with applicable certification and disclosure requirements (generally including provision of a valid IRS Form W-8ECI (or applicable successor form) certifying that the dividends are effectively connected with the non-U.S. holder's conduct of a trade or business within the United States). Instead, such dividends generally will be subject to U.S. federal income tax on a net income basis, at regular U.S. federal income tax rates as would apply if such holder were a U.S. person (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is classified as a corporation for U.S. federal income tax purposes may also be subject to an additional "branch profits tax" at a rate of 30% (or such lower rate as may be specified by an applicable income tax treaty).

A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) and satisfy applicable certification and other requirements. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty and the specific methods available to them to satisfy these requirements.

Gain on Sale or Other Disposition of Common Stock

Subject to the discussion below under the headings "*FATCA*" and "*Backup Withholding, Information Reporting and Other Reporting Requirements,*" a non-U.S. holder generally will not be subject to U.S. federal income tax on any gain realized upon the sale or other disposition of the non-U.S. holder's shares of our common stock unless:

- the gain is effectively connected with a trade or business carried on by the non-U.S. holder within the United States (and, if required by an applicable income tax treaty, is attributable to a U.S. permanent establishment or fixed base maintained by such non-U.S. holder);
- the non-U.S. holder is an individual and is present in the United States for 183 days or more in the taxable year of disposition and certain other conditions are met; or
- we are or have been a "U.S. real property holding corporation" for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding such disposition or such non-U.S. holder's holding period of our common stock, and, provided that our common stock is regularly traded in an established securities market within the meaning of applicable Treasury Regulations, the non-U.S. holder has held, directly, indirectly, or constructively, at any time during said period, more than 5% of our common stock.

Gain that is effectively connected with the conduct of a trade or business in the United States generally will be subject to U.S. federal income tax on a net income tax basis, at regular U.S. federal income tax rates that apply to U.S. persons. If the non-U.S. holder is a non-U.S. corporation, the branch profits tax described above also may apply to such effectively connected gain. An individual non-U.S. holder who is subject to U.S. federal income tax because the non-U.S. holder was present in the United States for 183 days or more during the year of sale or other disposition of our common stock will be subject to a flat 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the gain derived from such sale or other disposition, which may be offset by certain U.S. source capital losses, if any. We believe that we are not and we do not anticipate becoming a U.S. real property holding corporation for U.S. federal income tax purposes. Non-U.S. holders should consult their tax advisors regarding potentially applicable income tax treaties that may provide for different rules.

FATCA

Withholding taxes may be imposed under the Foreign Account Tax Compliance Act, or FATCA, on certain types of payments made to non-U.S. financial institutions and certain other non-U.S. entities. Specifically, a 30% withholding tax may be imposed on dividends (including deemed dividends) paid on our common stock, to a "foreign financial institution" or a "non-financial foreign entity" (each as defined in the Code), unless (i) the foreign financial institution undertakes certain diligence and reporting obligations, (ii) the non-financial foreign entity either certifies it does not have any "substantial United States owners" (as defined in the Code) or furnishes identifying information regarding each substantial U.S. owner, or (iii) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the U.S. governing FATCA may be subject to the reporting rules of that intergovernmental agreement. Because we may not know the extent to which a distribution is a dividend for U.S. federal income tax purposes at the time it is made, for purposes of these withholding rules we or the applicable withholding agent may treat the entire distribution as a dividend. Although withholding under FATCA would have applied also to payments of gross proceeds from the sale or other disposition of stock on or after January 1, 2019, proposed Treasury Regulations would eliminate FATCA withholding on payments of gross proceeds entirely. Taxpayers generally may rely on these proposed Treasury Regulations until final Treasury Regulations are issued. Under certain circumstances, a non-U.S. holder will be eligible for refunds or credits of withholding taxes imposed under FATCA by timely filing a U.S. federal income tax return. Prospective investors should consult their tax advisors regarding the potential application of these withholding provisions.

Backup Withholding, Information Reporting and Other Reporting Requirements

We must report annually to the IRS and to each non-U.S. holder the amount of any distributions paid to, and the tax withheld with respect to, each non-U.S. holder. These reporting requirements apply regardless of whether withholding was reduced or eliminated by an applicable income tax treaty. Copies of this information reporting may also be made available under the provisions of a specific income tax treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established.

A non-U.S. holder will generally be subject to backup withholding for dividends on our common stock paid to such holder unless such holder certifies under penalties of perjury that, among other things, it is a non-U.S. holder (provided that the payor does not have actual knowledge or reason to know that such holder is a U.S. person) or otherwise establishes an exemption.

Information reporting and backup withholding generally will apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or non-U.S., unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them.

Backup withholding is not an additional income tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder generally can be credited against the non-U.S. holder's U.S. federal income tax liability, if any, or refunded, provided that the required information is furnished to the IRS in a timely manner. Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them.

U.S. Federal Estate Tax

Shares of our common stock that are owned or treated as owned by an individual who is not a citizen or resident of the United States (as specially defined for U.S. federal estate tax purposes) at the time of death are considered U.S. situs assets and will be included in the individual's gross estate for U.S. federal estate tax purposes. Such shares, therefore, may be subject to U.S. federal estate tax, unless an applicable estate tax or other treaty provides otherwise.

The preceding discussion of material U.S. federal income tax considerations and certain U.S. federal estate tax considerations is for information only. It is not legal or tax advice. Prospective investors should consult their tax advisors regarding the particular U.S. federal, state, local and non-U.S. tax consequences of acquiring, owning and disposing of our common stock, including the consequences of any proposed changes in applicable laws.

PLAN OF DISTRIBUTION

The Registered Stockholders, and their pledgees, donees, transferees, assignees, or other successors in interest may sell their shares of common stock covered hereby pursuant to brokerage transactions on Nasdaq, or other public exchanges or registered alternative trading venues, at prevailing market prices at any time after the common stock are listed for trading. We are not party to any arrangement with any Registered Stockholder or any broker-dealer with respect to sales of shares of common stock by the Registered Stockholders, except we have engaged a financial advisor with respect to certain other matters relating to the registration of our common stock and listing of our common stock, as further described below. As such, we do not anticipate receiving notice as to if and when any Registered Stockholder may, or may not, elect to sell their shares of common stock or the prices at which any such sales may occur, and there can be no assurance that any Registered Stockholders will sell any or all of their shares of common stock covered by this prospectus.

We will not receive any proceeds from the sale of shares of common stock by the Registered Stockholders. We will recognize costs related to this direct listing and our transition to a publicly-traded company consisting of professional fees and other expenses. We will expense these amounts in the period incurred and not deduct these costs from net proceeds to the issuer as they would be in an initial public offering.

On the day that our shares of common stock are initially listed on Nasdaq, Nasdaq will begin accepting, but not executing, pre-opening buy and sell orders and will begin to continuously generate the indicative Current Reference Price on the basis of such accepted orders. The Current Reference Price is calculated each second and, during a 10-minute "Display Only" period, is disseminated, along with other indicative imbalance information, to market participants by Nasdaq on its NOII and BookViewer tools. Following the "Display Only" period, a "Pre-Launch" period begins, during which the Advisor, in its capacity as our financial advisor, must notify Nasdaq that our shares are "ready to trade." Once the Advisor has notified Nasdaq that our shares of common stock are ready to trade, Nasdaq will confirm the Current Reference Price for our shares of common stock, in accordance with Nasdaq rules. If the Advisor then approves proceeding at the Current Reference Price, the applicable orders that have been entered will then be executed at such price and regular trading of our shares of common stock on Nasdaq will commence, subject to Nasdaq conducting validation checks in accordance with Nasdaq rules.

Under Nasdaq rules, the Current Reference Price means: (i) the single price at which the maximum number of orders to buy or sell can be matched; (ii) if there is more than one price at which the maximum number of orders to buy or sell can be matched, then it is the price that minimizes the imbalance between orders to buy or sell (i.e. minimizes the number of shares that would remain unmatched at such price); (iii) if more than one price exists under (ii), then it is the entered price (i.e. the specified price entered in an order by a customer to buy or sell) at which our shares of common stock will remain unmatched (i.e. will not be bought or sold); and (iv) if more than one price exists under (iii), a price determined by Nasdaq in consultation with the Advisor in its capacity as our financial advisor. In the event that more than one price exists under (iii), the Advisor will exercise any consultation rights only to the extent that it can do so consistent with the anti-manipulation provisions of the federal securities laws, including Regulation M, or applicable relief granted thereunder.

In determining the Current Reference Price, Nasdaq's cross algorithms will match orders that have been entered into and accepted by Nasdaq's system. This occurs with respect to a potential Current Reference Price when orders to buy shares of common stock at an entered bid price that is greater than or equal to such potential Current Reference Price are matched with orders to sell a like number of shares of common stock at an entered asking price that is less than or equal to such potential Current Reference Price. To illustrate, as a hypothetical example of the calculation of the Current Reference Price, if Nasdaq's cross algorithms matched all accepted orders as described above, and two limit orders remained — a limit order to buy 500 shares of common stock at an entered bid price of $10.01 per share and a limit order to sell 200 shares of common stock at an entered asking price of $10.00 per share — the Current Reference Price would be selected as follows:

- Under clause (i), if the Current Reference Price is $10.00, then the maximum number of additional shares that can be matched is 200. If the Current Reference Price is $10.01, then the maximum number of additional shares that can be matched is also 200, which means that the same maximum number of additional shares would be matched at the price of either $10.00 or $10.01.

- Because more than one price under clause (i) exists, under clause (ii), the Current Reference Price would be the price that minimizes the imbalance between orders to buy or sell (i.e., minimizes the number of shares that would remain unmatched at such price). Selecting either $10.00 or $10.01 as the Current Reference Price would create the same imbalance in the limit orders that cannot be matched, because at either price 300 shares would not be matched.

- Because more than one price under clause (ii) exists, under clause (iii), the Current Reference Price would be the entered price at which orders for shares of common stock at such entered price will remain unmatched. In such case, choosing $10.01 would cause 300 shares of the 500-share limit order with the entered price of $10.01 to remain unmatched, compared to choosing $10.00, where all 200 shares of the limit order with the entered price of $10.00 would be matched, and no shares at such entered price remain unmatched. Thus, Nasdaq would select $10.01 as the Current Reference Price, because orders for shares at such entered price will remain unmatched. The above example (including the prices) is provided solely by way of illustration.

The Advisor will determine when our shares of common stock are ready to trade and approve proceeding at the Current Reference Price primarily based on considerations of volume, timing and price. In particular, the Advisor will determine, based primarily on pre-opening buy and sell orders, when a reasonable amount of volume will cross on the opening trade such that sufficient price discovery has been made to open trading at the Current Reference Price. If the Advisor does not approve proceeding at the Current Reference Price (for example, due to the absence of adequate pre-opening buy and sell interest), the Advisor will request that Nasdaq delay the opening until such a time that sufficient price discovery has been made to ensure that a reasonable amount of volume crosses on the opening trade. Further, in the highly unlikely event that Nasdaq consults with the Advisor as described in clause (iv) of the definition of Current Reference Price, the Advisor would request that Nasdaq delay the opening to ensure a single opening price within clauses (i), (ii) or (iii) of the definition of the Current Reference Price. Under Nasdaq rules, in the event of such delay, prior to terminating such delay, there will be a 10-minute "Display Only" period during which market participants may enter quotes and orders in shares of our common stock in Nasdaq systems. In addition, beginning at 4:00 a.m., market participants may enter orders in shares of our common stock on Nasdaq. Such orders will be accepted and entered into the system. After the conclusion of the 10-minute "Display Only" period, our common stock will enter a "Pre-Launch" period of indeterminate duration. The "Pre-Launch" period will end and shares of our common stock will be released for trading by Nasdaq when certain conditions are met, including Nasdaq's receipt of notice from the Advisor that our shares of common stock are ready to trade, after which the Nasdaq system will calculate the Current Reference Price at that time and display it to the Advisor. If the Advisor then approves proceeding, the Nasdaq system will conduct certain validation checks. The Advisor, with concurrence of Nasdaq, may determine at any point during the delay process up through the conclusion of the "Pre-Launch" period to postpone and reschedule the Direct Listing. The Registered Stockholders will not be involved in Nasdaq's price-setting mechanism and will not coordinate or be in communication with the Advisor including with respect to any decision by the Advisor to delay or proceed with trading.

Similar to a Nasdaq-listed firm-commitment underwritten initial public offering, in connection with the listing of our shares of common stock, buyers and sellers who have subscribed will have access to Nasdaq's Order Imbalance Indicator, or the Net Order Imbalance Indicator, a widely available, subscription-based data feed, prior to submitting buy or sell orders. Nasdaq's electronic trading platform simulates auctions every second to calculate a Current Reference Price, the number of shares of common stock that can be paired off the Current Reference Price, the number of shares of common stock that would remain unexecuted at the Current Reference Price and whether a buy-side or sell-side imbalance exists, or whether there is no imbalance, to disseminate that information continuously to buyers and sellers via the Net Order Imbalance Indicator data feed.

However, because this is not an initial public offering being conducted on a firm-commitment underwritten basis, there will be no traditional book building process (that is, an organized process pursuant to which buy and sell interest is coordinated in advance to some prescribed level – the "book"). Moreover, prior to the opening trade, there will not be a price at which underwriters initially sold shares of common stock to the public, as there would be in a firm-commitment underwritten initial public offering. The lack of an initial public offering price could impact the range of buy and sell orders collected by Nasdaq from various broker-dealers. Consequently, the public price of our shares of common stock may be more volatile than in an initial public offering underwritten on a firm-commitment basis and could, upon being listed on Nasdaq, decline significantly and rapidly.

In addition, to list on Nasdaq, we are also required to have at least four registered and active market makers. We expect that the Advisor will act as a registered and active market maker and will engage other market makers.

In addition to sales made pursuant to this prospectus, the shares of common stock covered by this prospectus may be sold by the Registered Stockholders in private transactions exempt from the registration requirements of the Securities Act. Under the securities laws of some states, shares of common stock may be sold in such states only through registered or licensed brokers or dealers.

A Registered Stockholder may from time to time transfer, distribute (including distributions in kind by Registered Stockholders that are investment funds), pledge, assign, or grant a security interest in some or all the shares of common stock owned by it and, if it defaults in the performance of its secured obligations, the transferees, distributees, pledgees, assignees, or secured parties may offer and sell the shares of common stock from time to time under this prospectus, or under an amendment to this prospectus under applicable provisions of the Securities Act amending the list of the Registered Stockholders to include the transferee, distributee, pledgee, assignee, or other successors in interest as Registered Stockholders under this prospectus. The Registered Stockholders also may transfer the shares in other circumstances, in which case the transferees, distributes, pledgees, or other successors in interest will be the registered beneficial owners for purposes of this prospectus.

A Registered Stockholder that is an entity may elect to make an in-kind distribution of common stock to its members, partners, or stockholders pursuant to the registration statement of which this prospectus forms a part by delivering a prospectus.

If any of the Registered Stockholders utilize a broker-dealer in the sale of the shares of common stock being offered by this prospectus, such broker-dealer may receive commissions in the form of discounts, concessions or commissions from such Registered Stockholder or commissions from purchasers of the shares of common stock for whom they may act as agent or to whom they may sell as principal.

We have engaged the Advisor, Maxim Group LLC, as our financial advisor to advise and assist us with respect to certain matters relating to the Direct Listing. The services expected to be performed by the Advisor will include providing advice and assistance with respect to defining objectives, analyzing, structuring and planning the Direct Listing and developing and assisting with our investor communication strategy in relation to the Direct Listing. In connection with its engagement as our financial advisor, the Advisor will be entitled to a fee of $200,000 upon the successful consummation of the Direct Listing. The Advisor will also be entitled to an expense reimbursement for all reasonable, documented expenses incurred by the Advisor in connection with its engagement, provided that (i) such expenses, other than legal fees, may not exceed $5,000 without our prior authorization and (ii) such expenses that constitute legal fees may not exceed $10,000 without our prior authorization.

In addition, pursuant to our agreement with the Advisor, for a period of nine months from the date of the consummation of the Direct Listing, if we propose to (i) effect a public offering of our securities on a major U.S. exchange, (ii) effect a private placement of our securities, (iii) enter into certain financing transactions with third parties introduced to us by the Advisor or (iv) propose to enter into certain other transactions with third parties introduced to us by the Advisor, including, without limitation, a merger, acquisition or sale of stock or assets, or other similar transaction, we are obligated to offer to retain the Advisor as our lead underwriter and book running manager, our lead placement or sales agent, or our lead advisor (lead, but not exclusive, advisor with at least 70% economics to lead and up to 30% to others), as applicable, in connection with such financing or transaction, upon such reasonable and customary terms as the Advisor and we may mutually agree, with such terms to be set forth in a separate engagement letter or other agreement between the Advisor and us.

The Advisor will not be engaged to otherwise facilitate or coordinate price discovery activities or the solicitation and/or sales of shares of our common stock in consultation with us, and will not be permitted to, and will not be instructed by us to, plan or actively participate in any investor education activities, except as described herein.

Prior to the financial advisory services provided by the Advisor to us in connection with the listing of our securities, neither the Advisor nor any affiliates of the Advisor have provided services of any kind to us.

LEGAL MATTERS

The validity of the shares of common stock offered hereby will be passed upon for us by Norton Rose Fulbright US LLP, Houston, Texas.

EXPERTS

The audited financial statements of FibroBiologics, Inc. as of and for the years ended December 31, 2022 and 2021 included in this registration statement have been audited by Withum Smith+Brown, PC, an independent registered public accounting firm, as stated in their report appearing herein. Such audited financial statements have been so included in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act, with respect to the shares of common stock being offered by this prospectus. This prospectus, which constitutes part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits and schedules filed therewith. Statements contained in this prospectus regarding the contents of any contract or any other document that is filed as an exhibit to the registration statement are not necessarily complete, and each such statement is qualified in all respects by reference to the full text of such contract or other document filed as an exhibit to the registration statement.

Immediately upon the effectiveness of the registration statement of which this prospectus forms a part, we will become subject to the information and reporting requirements of the Exchange Act and, in accordance with such law, will file annual, quarterly and current reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. You may obtain documents that we file with the SEC at www.sec.gov. Our website address is www.fibrobiologics.com. We do not incorporate the information on or accessible through our website into this prospectus, and you should not consider any information on, or that can be accessed through, our website as part of this prospectus. Our website address is included in this prospectus as an inactive textual reference only.

INDEX TO FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and Board of Directors of
FibroBiologics, Inc.:

Opinion on the Financial Statements

We have audited the accompanying balance sheets of FibroBiologics, Inc. (the "Company") as of December 31, 2022 and 2021, and the related statements of operations, changes in stockholders' deficit, and cash flows for each of the two years in the period ended December 31, 2022, 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 December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2022, 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 these 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 and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the 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/ WithumSmith+Brown PC

We have served as the Company's auditor since 2022.

East Brunswick, New Jersey
April 28, 2023, except for the effects of the reverse stock split described in Note 13, as to which the date is November 7, 2023

FibroBiologics, Inc.
Balance Sheets
(in thousands, except shares and per share data)

	December 31,	
	2022	**2021**
Assets		
Current assets		
Cash and cash equivalents	$ 2,266	$ 407
Prepaid expenses	29	37
Parent company receivable	300	—
Other current assets	30	24
Total current assets	2,625	468
Operating lease right-of-use asset, net	2,199	—
Total assets	$ 4,824	$ 468
Liabilities and stockholders' deficit		
Current liabilities		
Accounts payable and accrued expenses	$ 758	$ 233
Parent company payable	—	225
Operating lease liability, short-term	326	—
Derivative liability	538	—
Convertible notes payable, net of debt discount	5,451	1,300
Total current liabilities	7,073	1,758
Operating lease liability, long-term	1,747	—
Total liabilities	8,820	1,758
Stockholders' deficit		
Net Parent investment	1,461	1,461
Preferred Stock, $0.00001 par; 12,500,000 total shares authorized; 8,750,000 Series "A" Preferred shares authorized, issued and outstanding as of December 31, 2022 and 2021	—	—
Preferred Stock, $0.00001 par; 12,500,000 total shares authorized; 2,500,000 Series "B" Preferred shares authorized; 381,658 shares issued and outstanding as of December 31, 2022; no shares issued and outstanding as of December 31, 2021	—	—
Non-voting Common Stock, $0.00001 par; 62,500,000 shares authorized; 28,230,842 shares issued and outstanding as of December 31, 2022; no shares issued and outstanding as of December 31, 2021	1	—
Additional paid-in capital	2,414	—
Accumulated deficit	(7,872)	(2,751)
Total stockholders' deficit	(3,996)	(1,290)
Total liabilities and stockholders' deficit	$ 4,824	$ 468

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

FibroBiologics, Inc.
Statements of Operations
(in thousands, except shares and per share data)

	For the Years Ended December 31,	
	2022	**2021**
Operating expenses:		
Research and development	$ 1,147	$ 521
General, administrative and other	3,320	1,057
Total operating expenses	4,467	1,578
Loss from operations	(4,467)	(1,578)
Interest expense	(654)	(4)
Net loss	$ (5,121)	$ (1,582)
Net loss per share, basic and diluted	$ (.18)	$ N/A
Weighted-average shares outstanding, basic and diluted	28,230,842	N/A

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

FibroBiologics, Inc.
Statements of Changes in Stockholders' Deficit
For the years ended December 31, 2022 and 2021
(in thousands, except shares)

	Net Parent Investment	Series "A" Preferred Stock		Series "B" Preferred Stock		Non-voting Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders Deficit
		Shares	Amount	Shares	Amount	Shares	Amount			
Balance – December 31, 2020	$ 1,169	—	$ —	—	$ —	—	$ —	$ —	$ (1,169)	$ —
Issuance of capital shares upon Company formation	—	8,750,000	—	—	—	—	—	—	—	—
Capital contributions	292	—	—	—	—	—	—	—	—	292
Net loss	—	—	—	—	—	—	—	—	(1,582)	(1,582)
Balance – December 31, 2021	1,461	8,750,000	—	—	—	—	—	—	(2,751)	(1,290)
Issuance of Non-Voting Common Stock to Parent company members	—	—	—	—	—	28,179,592	1	(1)	—	—
Issuance of Series "B" Preferred shares	—	—	—	381,658	—	—	—	2,150	—	2,150
Stock-based compensation expense	—	—	—	—	—	51,250	—	265	—	265
Net loss	—	—	—	—	—	—	—	—	(5,121)	(5,121)
Balance – December 31, 2022	$ 1,461	8,750,000	$ —	381,658	$ —	28,230,842	$ 1	$ 2,414	$ (7,872)	$ (3,996)

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

FibroBiologics, Inc.
Statements of Cash Flows
(in thousands)

	For the Years Ended December 31,	
	2022	**2021**
Cash flows from operating activities		
Net loss	$ (5,121)	$ (1,582)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	265	—
Amortization of convertible notes debt discount	389	—
Amortization of operating lease right-of-use asset	94	—
Changes in operating assets and liabilities:		
Change in prepaid expenses	8	(37)
Change in accounts payable and accrued expenses	525	233
Change in other current assets	(6)	(24)
Change in operating lease liability	(220)	—
Net cash used in operating activities	(4,066)	(1,410)
Cash flows from financing activities		
Proceeds from borrowing from Parent	—	975
Repayment to Parent	(225)	(750)
Loan to Parent	(360)	—
Repayment from Parent	60	
Proceeds from net Parent investment	—	292
Proceeds from issuance of convertible notes	4,300	1,300
Proceeds from issuance of Series “B” Preferred Stock	2,150	—
Net cash provided by financing activities	5,925	1,817
Net increase in cash and cash equivalents	1,859	407
Cash and cash equivalents, beginning of year	407	—
Cash and cash equivalents, end of year	$ 2,266	$ 407
Supplemental disclosure of cash flow information:		
Cash paid for income taxes	$ —	$ —
Cash paid for interest	$ —	$ —
Supplemental disclosure of non-cash investing and financing activities:		
Addition to derivative liability for debt issuance discount	$ 538	$ —
Obtaining operating lease right-of-use asset and liability	$ 2,293	$ —

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

1. Organization, Description of Business, and Liquidity

Organization and Business

FibroBiologics, Inc. (the "Company", "FibroBiologics") was originally formed as an LLC under the laws of the State of Texas on April 8, 2021 ("Inception") and then converted to a Delaware corporation on December 14, 2021. FibroBiologics is an early stage, cell therapy company headquartered in Houston, Texas, developing innovative treatments for chronic diseases using fibroblast cells. The Company's primary focus is the initiation and progression of preclinical studies and clinical-stage FDA trials related to fibroblast treatments for Degenerative Disc Disease, Multiple Sclerosis, Cancer, Wound Healing and other diseases. Prior to Inception, preclinical research and development related to these disease pathways took place under our parent company, SpinalCyte, LLC (the "Parent", "FibroGenesis").

Going Concern and Management's Plan

The Company has incurred operating losses since Inception and expects such losses to continue in the future as it builds infrastructure, develops intellectual property and conducts research and development activities. The Company has primarily relied on a combination of angel investors and private debt placements to funds its operations. As of December 31, 2022, the Company had an accumulated deficit of $7,872 thousand and cash and cash equivalents of $2,266 thousand. A transition to profitability will depend on the successful development, approval and commercialization of product candidates and on the achievement of sufficient revenues to support the Company's cost structure. The Company currently does not generate revenues and may never achieve profitability. Unless and until such time that revenue and net income are generated, the Company will need to continue to raise additional capital. As further described in Note 7, management has entered into a share purchase agreement as of November 12, 2021. In the event of a direct listing or an initial public offering on a nationally recognized U.S. stock exchange, this agreement will provide the Company with access to additional liquidity. As further described in Note 12, during the first three months of 2023 the Company raised $5 million through a crowdfunding offering and more than $10 million through a private placement offering. As a result, the Company believes it has adequate capital to fund its current operating plan for at least the next 12 months from the date of issuance of these Financial Statements.

Segments

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision maker in making decisions regarding resource allocation and assessing performance. The chief executive officer, who is the chief operating decision maker, reviews financial information on an aggregate basis for purposes of allocating resources and evaluating financial performance. The Company operates and manages its business as a single operating segment and therefore one reportable segment.

2. Summary of Significant Accounting Policies

Basis of Presentation

During the initial period during 2021 prior to its formation on April 8, 2021, the Company operated as a line of business of FibroGenesis rather than as a separate stand-alone entity. Consequently, stand-alone financial statements were not historically prepared for FibroBiologics. These Financial Statements have been prepared in connection with the formation and planned public listing of FibroBiologics and, prior to the Company's formation on April 8, 2021, were derived from the historical accounting records of the Parent. All expenses, assets, and liabilities directly associated with the business activity of the Company as well as certain allocations from the Parent are included in the Financial Statements. Such allocations include the Company's portion of general and administrative expenses and research and development expenses originally incurred by the Parent prior to the Company's formation on April 8, 2021, for the disease pathways now pursued by FibroBiologics.

The expense allocations were determined by management and derived from the number of patents transferred to the Company through the patent transfer and assignment agreement between FibroBiologics and FibroGenesis. Patents were determined to be the most reasonable basis for allocation because patent development is the main driver of business activity for each entity during the preclinical phase, and they are the strongest proxy for expenses incurred by the Parent on behalf of the Company. Management believes the assumptions underlying the Financial Statements, including the assumptions regarding the allocation of expenses from the Parent, are reasonable. However, amounts recognized by the Company are not necessarily representative of the amounts that would have been reflected in the Financial Statements had the Company operated independently of the Parent as a standalone entity during the periods presented.

The accompanying Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP").

Net Parent Investment

Because the Financial Statements are derived from the historical records of the Parent, the net Parent investment is presented within stockholders' deficit on the Balance Sheets. As a subsidiary of the Parent, the Company was dependent upon the Parent for all of its working capital and financing requirements prior to entering into the Convertible Note agreements. Financial transactions that relate to FibroBiologics but occurred at the Parent level are accounted for through the net Parent investment account. Accordingly, none of the Parent's cash, cash equivalents, or debt has been assigned to the Company in the financial statements. Net Parent investment represents the Parent's interest in the recorded net assets of the Company.

Use of Estimates

The preparation of the 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 periods. These estimates are based on information available as of the date of the Financial Statements; therefore, actual results could differ from those estimates and assumptions.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash and cash equivalents. The Company has significant cash balances at financial institutions, which, throughout the year, regularly exceed the federally insured limit of $250,000. Any loss incurred or a lack of access to such funds could have a significant adverse impact on the Company's financial condition, results of operations and cash flows.

Risks and Uncertainties

The Company is subject to certain risks and uncertainties, including, but not limited to changes in any of the following areas that the Company believes could have a material adverse effect on the future financial position or results of operations: the timing of, and the Company's ability to advance its current and future product candidates into and through clinical development; costs and timelines associated with the manufacture of clinical supplies of the Company's product candidates; regulatory approval and market acceptance of its product candidates; performance of third-party contract research organizations ("CROs") and contract manufacturing organizations ("CMOs"); competition from pharmaceutical companies with greater financial resources or expertise; protection of the intellectual property, litigation or claims against the Company based on intellectual property, or other factors; the need to obtain additional funding; and its ability to attract and retain employees necessary to support its growth. Disruption from CROs', CMOs' or suppliers' operations would likely have a negative impact on the Company's business, financial position and results of operations.

Cash and Cash Equivalents

Cash and cash equivalents consist of unrestricted cash balances and short-term, liquid investments with an original maturity date of three months or less at the time of purchase.

Fair Value Measurements

Accounting Standards Codification ("ASC") Topic 820, Fair Value Measurement ("ASC 820"), establishes a fair value hierarchy for instruments measured at fair value that distinguishes between assumptions based on market data (observable inputs) and the Company's own assumptions (unobservable inputs). Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the assets or liability and are developed based on the best information available in the circumstances. ASC 820 identifies fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As a basis for considering market participant assumptions in fair value measurements, ASC 820 establishes a three-tiered value hierarchy that distinguishes between the following:

Level 1 - Quoted market prices in active markets for identical assets or liabilities.

Level 2 - Inputs other than Level 1 inputs that are either directly or indirectly observable, such as quoted market prices, interest rates and yield curves.

Level 3 - Unobservable inputs for the asset or liability (i.e., supported by little or no market activity). Level 3 inputs include management's own assumptions about the assumptions that market participants would use in pricing the asset or liability (including assumptions about risk).

Research and Development

Research and development costs are charged to expense as incurred. Research and development costs consist of costs incurred in performing research and development activities, including salaries and bonuses, scientist recruiting costs, employee benefits, facilities costs, laboratory supplies, manufacturing expenses, preclinical expenses, research materials, and consulting and other contracted services. Costs for certain research and development activities are recognized based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the Financial Statements as prepaid or accrued research and development.

Patent Costs

As the Company continues to incur costs to obtain market approval of patented technology, patent costs are expensed as incurred. Costs include fees to renew or extend the term of recognized intangible assets, patent defense costs, and patent application costs. Management will continue to expense such costs until market approval is obtained through regulatory approval by the appropriate governing body.

Income Taxes

On December 8, 2021, the Company converted from a partnership LLC to a C-Corp. Subsequent to this date, the Company began accounting for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Valuation allowances are established when necessary to reduce deferred tax assets to an amount that is more likely than not to be realized.

Under the provisions of ASC 740-10, Income Taxes, the Company evaluates uncertain tax positions by reviewing against applicable tax law all positions taken by the Company with respect to tax years for which the statute of limitations is still open. ASC 740-10 provides that a tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits. The Company recognizes interest and penalties related to the liability for unrecognized tax benefits, if any, as a component of the income tax expense line in the accompanying Statements of Operations.

Recently Adopted Accounting Pronouncements

In August 2020, the FASB issued ASU No. 2020-06, Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity (ASU 2020-06), which simplifies the accounting for convertible instruments by reducing the number of accounting models available for convertible debt instruments. This guidance also eliminates the treasury stock method to calculate diluted earnings per share for convertible instruments and requires the use of the if-converted method. The Company has early adopted this standard as of January 1, 2021, which is currently reflected in its Financial Statements.

In December 2019, the FASB issued ASU No. 2019-12, Income Taxes (Topic 740). The amendments in ASU No. 2019-12 simplify the accounting for income taxes by removing certain exceptions to the general principles in Topic 740. The amendments also improve consistent application of and simplify U.S. GAAP or other areas of Topic 740 by clarifying and amending existing guidance. The new standard was effective for the Company on January 1, 2022, and for interim periods beginning on January 1, 2023. The Company has adopted this standard which is currently reflected in its Financial Statements.

3. Net Loss Per Share Attributable to Common Stockholders

The following table summarizes the computation of basic and diluted net loss per share attributable to common stockholders of the Company:

	Year Ended December 31,	
(in thousands, except share and per share amounts)	2022	2021
Numerator:		
Net loss attributable to common stockholders:	$ (5,121)	$ (1,582)
Denominator:		
Weighted-average number of common shares outstanding, basic and diluted	28,230,842	N/A
Net loss per common share attributable to common stockholders, basic and diluted (1)	$ (0.18)	$ N/A

(1) The Company had no shares of its common stock issued and outstanding during the year ended December 31, 2021.

As further described in Note 6, the Company issued 28,230,842 shares of non-voting common stock on August 18, 2022, and 381,658 shares of Series "B" Preferred Stock in December 2022. The weighted average number of shares outstanding for the year ended December 31, 2022, is based upon the non-voting common stock shares issued on August 18, 2022.

The Company had $5,600 thousand of convertible notes outstanding as of December 31, 2022, which may be converted into common stock in the event that the Company issues and sells shares of its capital stock in excess of $10,000 thousand as further described in Note 5. As of December 31, 2022, the estimated number of shares of common stock that would be issued upon conversion is 801,145 shares. For the years ended December 31, 2022 and 2021, the Company reported net losses and, accordingly, potential common shares were not included since such inclusion would have been anti-dilutive. As a result, the Company's basic and diluted net losses per share are the same because it generated a net loss in all periods presented.

4. Fair Value of Financial Instruments

As of December 31, 2022, the Company measures its derivative liability related to the conversion option feature in the 2022 Notes, as described in Note 5, at fair value. This derivative liability is classified within Level 3 of the value hierarchy because the liability is based upon a valuation model that uses inputs and assumptions including potential outcomes, interest rates, probabilities, and timing. As of December 31, 2021, the Company did not have any financial instruments measured at fair value on a recurring basis.

The carrying amounts of cash and cash equivalents, prepaid expenses, other current assets, accounts payable, accrued expenses, convertible notes payable, and Parent company payable and receivable approximate their fair values due to their short-term maturities.

There were no transfers in or out of Level 1, Level 2 or Level 3 assets and liabilities for the years ended December 31, 2022 and 2021.

5. Convertible Notes Payable

The Company entered into multiple convertible promissory note agreements in December 2021 (collectively the "2021 Notes"). Under the 2021 Notes, the Company received $1,300 thousand, which accrues simple interest at a rate of 6.0% per annum and matures in the event of an initial public offering of the Company. Upon maturity of the 2021 Notes, the holders may elect to receive cash payment in full for the outstanding principal and interest or elect a one-year extension at the discretion of the holders of the 2021 Notes.

In the event that the Company issues and sells shares of its capital stock in excess of $10,000 thousand, the outstanding balance of the 2021 Notes and accrued interest may be converted into a fixed number of shares of common stock, subject only to typical anti-dilution provisions for any recapitalization that may occur.

Based on the terms of the 2021 Notes, the Company evaluated the conversion option feature in accordance with ASC 815 Derivatives and Hedging. It provides three criteria that, if met, require companies to bifurcate conversion options from their host instruments and account for them as freestanding derivative financial instruments. These three criteria include circumstances in which (a) the economic characteristics and risks of the embedded derivative instrument are not clearly and closely related to the economic characteristics and risks of the host contract, (b) the hybrid instrument that embodies both the embedded derivative instrument and the host contract is not re-measured at fair value under otherwise applicable generally accepted accounting principles with changes in fair value reported in earnings as they occur and (c) a separate instrument with the same terms as the embedded derivative instrument would be considered a derivative instrument.

At the inception of the 2021 Notes, and at December 31, 2021 and 2022, the Company determined that an embedded derivative for the conversion feature did not meet the criteria because it met the "indexed to the entity's own stock" exception and therefore was not required to be bifurcated from the host instrument.

The Company issued additional convertible promissory notes between January and April 2022 with a total principal amount of $4,300 thousand and a one-year maturity (collectively the "2022 Notes"). The 2022 Notes may be converted at the lesser of a) a 15% discount to the offering price of the Company's common stock in the event of an initial public offering of the Company or b) the quotient of $200,000 thousand divided by total equity interests prior to the dilution from the offering. The conversion option feature in the 2022 Notes was evaluated in accordance with ASC 815, and a derivative liability for the $538 thousand estimated fair value of the conversion option was recorded at the time the notes were issued and as of December 31, 2022. An offsetting discount on the issuance of the notes was recorded and is being amortized to interest expense over the expected life of the 2022 Notes.

The interest expense, excluding amortization of the discount recorded on the 2022 Notes, on the 2021 and 2022 Notes for the years ended December 31, 2022 and 2021, was $265 thousand and $4 thousand, respectively, which was outstanding and included within accounts payable and accrued expenses.

The convertible debt balances consisted of the following at December 31, 2022 and 2021:

(in thousands)	December 31, 2022	December 31, 2021
Convertible notes principal	$ 5,600	$ 1,300
Convertible notes discount	(149)	—
Convertible notes payable, net of discount	$ 5,451	$ 1,300

6. Stockholders' Deficit / Net Parent Investment

Authorized Capital - As of December 31, 2022 and 2021, the Company authorized 12,500,000 preferred stock shares, and has issued 8,750,000 Series "A" Preferred Stock shares to FibroGenesis, which were tendered pursuant to the formation of the Company in exchange for the contribution of certain in-process research and development and patent assets through Patent Assignment and Intellectual Property Cross-License Agreements. The Series "A" Preferred Stock shares have the right to vote and rank prior to non-voting common stock and common stock with respect to payment of dividends and distributions and upon liquidation, dissolution, winding-up or otherwise. In addition, the Series "A" Preferred Stock has a liquidation preference equal to $35,000 thousand to be allocated among the holders of the Series "A" Preferred Stock shares in the event of a liquidation, dissolution, or winding up of the Company, and each share of Series "A" Preferred Stock may be converted into one share of common stock at any time at the election of the holder of such shares of Series "A" Preferred Stock. Unless otherwise elected by the holder(s), a merger or consolidation in which the Company is not the majority surviving entity or the sale of all or substantially all of the assets of the corporation will be a deemed liquidation event. The Company has also authorized 62,500,000 shares of non-voting common stock, and has issued during the year ended December 31, 2022, a total of 28,230,842 shares. In August 2022, the Company issued 28,179,592 shares of non-voting common stock to its Parent, which in turn distributed the shares to its members. This issuance of non-voting common stock was accounted for as stock split and no proceeds were received by the Company. The Company also issued to its board of directors, a consultant, and an employee an additional 51,250 total shares in 2022 and recorded $168 thousand of expense for the issuance of these shares, which was based upon a third-party valuation of the shares at the time of issuance. None of the non-voting common stock shares were issued and outstanding as of December 31, 2021.

In December 2022, the Company amended its Certificate of Incorporation to authorize 2,500,000 shares of Series "B" Preferred Stock and issued 381,658 shares in exchange for $2,150 thousand. The Series "B" Preferred Stock has a liquidation preference after Series "A" Preferred Stock and prior to Common Stock and Non-Voting Common Stock. The Series "B" Preferred Stock has voting rights and will automatically convert into Common Stock upon closing of an IPO transaction, as defined in the Company's Amended and Restated Certificate of Incorporation.

7. Share Subscription Agreement

On November 12, 2021, the Company entered into a Share Purchase Agreement with certain investors for the sale of up to $100,000 thousand of common stock (the "Aggregate Limit"). This agreement is contingent upon the Company achieving a public listing of its common stock. Major terms of the agreement include a commitment fee of 2% of the Aggregate Limit, which is due no later than one year after public listing even if no drawdowns are taken, and five-year warrants issued to the investors at the time of public listing to purchase common stock shares equal to 4% of the total equity interests of the Company at the lesser of a) the price per share at the time of the public listing or b) the quotient of $700,000 thousand divided by the total number of equity interests (fully diluted common shares). The Company may request a drawdown, or sale of common stock shares to the investors, over the five-year term of this agreement following the public listing unless terminated earlier. The amount of the drawdowns requested is limited by the trading volumes of the Company's common stock shares over the 30-day period preceding the drawdown, and the price per share is equal to 90% of the average price per share over that same period. A 1% fee must be paid to the investors if the Company is sold in a private sale transaction rather than completing a public listing of its shares.

8. Income Taxes

A reconciliation of the income tax benefit computed using the federal statutory income tax rate to the Company's effective income tax rate is as follows:

	Year Ended December 31,	
	2022	2021
Federal statutory rate	(21.0)%	(21.0)%
Permanent items	0.8	—
True up prior year NOL deferred tax asset	(6.1)	—
Other changes	1.9	—
Change in valuation allowance	24.4	21.0%
Total	0.0 %	0.0%

The components of the Company's net deferred tax assets are as follows:

(in thousands of dollars)	December 31, 2022	December 31, 2021
Deferred tax assets:		
Net operating loss carryforwards	$ 896	$ —
Lease liability	435	
Capitalized research and development	299	
Derivative liability	31	
Accrued liabilities	81	17
Stock compensation	17	
Deferred tax assets	1,759	17
Deferred tax liabilities:		
Lease right-of-use asset	(462)	—
Unamortized debt discount	(31)	—
Deferred tax liabilities	(493)	—
Less: valuation allowance	(1,266)	(17)
Net deferred tax assets	$ —	$ —

The Company was initially formed as an LLC and was converted to a Delaware corporation in December 2021. As a result of generating net operating losses during the years ended December 31, 2022 and 2021, the Company had no income tax expense for years ended December 31, 2022 and 2021. As of December 31, 2022, the Company had U.S. federal net operating loss (NOL) carryforwards of $4,265 thousand. The federal NOL carries forward indefinitely and may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest. This could limit the amount of tax attributes that can be utilized annually to offset future taxable income or tax liabilities. Subsequent ownership changes may further affect the limitation in future years.

Effective for tax years beginning after December 31, 2021, taxpayers are required to capitalize any expenses incurred that are considered incidental to research and experimentation (R&E) activities under IRC Section 174. While taxpayers historically had the option of deducting these expenses under IRC Section 174, the December 2017 Tax Cuts and Jobs Act mandates capitalization and amortization of R&E expenses for tax years beginning after December 31, 2021. Expenses incurred in connection with R&E activities in the US must be amortized over a 5-year period if incurred, and R&E expenses incurred outside the US must be amortized over a 15-year period. R&E activities are broader in scope than qualified research activities considered under IRC Section 41 (relating to the research tax credit). For the year ended December 31, 2022, the Company performed an analysis based on available guidance and determined that it will continue to be in a loss position even after the required capitalization and amortization of its R&E expenses. The Company will continue to monitor this issue for future developments, but it does not expect R&E capitalization and amortization to require it to pay cash taxes now or in the near future. We have included the impact of this provision, which results in a deferred tax asset of approximately $299 thousand as of December 31, 2022.

Management has evaluated the positive and negative evidence bearing upon the realizability of the Company's net deferred tax assets and has determined that it is more likely than not that the Company will not recognize the benefits of the net deferred tax assets. As a result, the Company has recorded a full valuation allowance at December 31, 2022 and 2021. The Company will continue to assess the realizability of its deferred tax assets going forward and will adjust the valuation allowance as needed.

As of December 31, 2022 and 2021, the Company had no uncertain tax positions. The Company recognizes both interest and penalties associated with unrecognized tax benefits as a component of income tax expense. The Company has not recorded any interest or penalties for unrecognized tax benefits since its inception.

9. Leases, Commitments and Contingencies

Effective January 1, 2020, the Company adopted ASU 2016-02, Leases (Topic 842) to account for the Company's leases. The Company elected to apply the short-term lease practical expedient upon adoption. Due to the short-term nature of the leases, the Company elected an accounting policy to not record short-term leases on the Balance Sheets. ASC 842-20-25-2 allows a lessee to elect an accounting policy to not record short-term leases, defined as those with terms of 12 months or less, on the balance sheet. In accordance with GAAP, rent expense for financial statement purposes was recognized on a straight-line basis over the lease term based on the most recent contractual terms available.

As of December 31, 2021, the Company had entered into two short-term lease agreements for lab and office space. The Company opted on March 30, 2022, to extend the lease term for one of its leases for lab and office space, with a commencement date for the lease extension on May 1, 2022. The extended lease term was 126 months and was accounted for as an operating lease under the ASC 842 guidance for lease accounting. A right-of-use lease asset and tenant improvement allowance receivable with a combined total of $2,799 thousand and a lease liability of $2,799 thousand were recorded at the time of the extension. This lease was terminated as of July 31, 2022, and the remaining balances of the right-of-use asset, tenant improvement allowance receivable, and lease liability were written off.

The Company expanded the scope and extended for six months the term for the remaining lease for temporary lab and office space on July 1, 2022, and then further expanded the scope on August 1, 2022, and October 7, 2022. The monthly license fee increased to $15 thousand per month. This lease for temporary lab and office space will continue to be accounted for as a short-term lease.

In October 2022, the Company entered into a lease agreement for office space with a term of 62 months, which expires on November 30, 2027. This lease will be accounted for as an operating lease under the ASC 842 guidance for lease accounting. A right-of-use lease asset and lease liability of $2,293 thousand each were recorded at inception of the lease term using a discount rate of 7.5%.

Rent expense under operating leases for the years ended December 31, 2022 and 2021, was $392 thousand and $26 thousand, respectively. As of December 31, 2022, noncancelable lease payments were $2,484 thousand.

Maturities of operating lease liabilities as of December 31, 2022, were as follows:

(in thousands of dollars)		
2023	$	466
2024		477
2025		488
2026		544
2027		509
Thereafter		—
Total lease payments		2,484
Less: imputed interest		(411)
Total lease liabilities		2,073
Less: current lease liabilities		(326)
Total non-current lease liabilities	$	1,747

10. Related Party Transactions

As of December 31, 2021, the Company had an outstanding related party Parent company payable of $225 thousand. The debt was held by FibroGenesis, and was due April 1, 2022, with a six-month extension option available at the discretion of FibroBiologics. The Company repaid in April 2022 the remaining Parent company payable of $225 thousand. In July 2022, the Company loaned $300 thousand to the Parent on a one-year note bearing no interest. In October 2022, the Company loaned $60 thousand to the Parent on a one-year note bearing no interest and this note was repaid before December 31, 2022.

As described in Note 6, the Company acquired from FibroGenesis certain in-process research and development and patent assets through Patent Assignment and Intellectual Property Cross-License Agreements. The Patent Assignment Agreement transferred the right, title and interest in and to certain patents from FibroGenesis to the Company for further development. The Intellectual Property Cross-License Agreement grants to the Company exclusive rights to patents owned by FibroGenesis in a limited field of use, which includes the diagnosis, treatment, prevention and palliation of a) spinal diseases, disorders, or conditions, b) cancer, c) orthopedics diseases, disorders or conditions, and d) multiple sclerosis.

11. Share-based Compensation

The Company adopted on August 10, 2022, and the shareholders approved on August 18, 2022, the 2022 Stock Plan (the "Plan"). The Plan provides for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, and other stock awards. The Plan, through the grant of stock awards, is intended to help the Company secure and retain the services of eligible award recipients, provide incentives for such persons to exert maximum efforts for the success of the Company and provide a means by which the eligible recipients may benefit from increases in value of the common stock. The Company issued in 2022 a total of 101,250 options with a strike price of $3.28 per share to employees, directors, and scientific advisory board members under this Plan. Generally, awards granted by the Company vest over three years and have an exercise price equal to the estimated fair value of the common stock as determined by the board of directors with consideration given to contemporaneous valuations of the Company's common stock prepared by an independent third-party valuation firm.

As of December 31, 2022, there were 12,398,750 shares available for future issuance under the Plan.

Stock-based compensation expense is recognized in the Statements of Operations as follows:

	For the Years Ended December 31,	
(in thousands of dollars)	2022	2021
Research and development	$ 115	$ —
General and administrative	150	—
Total stock-based compensation expense	$ 265	$ —

Stock-based compensation expense for the year ended December 31, 2022, includes $168 thousand of expense for non-voting common stock issued to the Board of Directors and consultants.

Unrecognized stock-based compensation costs related to unvested awards and the weighted-average period over which the costs are expected to be recognized as of December 31, 2022, are as follows:

	Stock Options
Unrecognized stock-based compensation expense (in thousands)	$ 169
Expected weighted-average period compensation costs to be recognized (years)	1.7

A summary of the Company's stock option activity is as follows:

	Stock Options	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Life (years)	Aggregate Intrinsic Value (in thousands)
Outstanding as of December 31, 2021	—	—	—	—
Granted	101,250	$ 3.28	10.0	—
Exercised	—	—	—	—
Forfeited/Canceled	—	—	—	—
Outstanding as of December 31, 2022	101,250	$ 3.28	9.7	—
Exercisable as of December 31, 2022	19,445	$ 3.28	9.7	—

The fair value of stock options granted to employees, directors, and consultants was estimated on the date of grant using the Black-Scholes option pricing model using the following assumptions:

Assumptions:	Year Ended December 31, 2022
Risk-free interest rate	4.1%
Expected volatility	100%
Expected term (years)	5.4 to 6.4
Expected dividend	0%

During the year ended December 31, 2022, the weighted-average grant date fair value of the options granted was $2.64 per share.

12. Subsequent Events

The Company has evaluated subsequent events through April 28, 2023, the date the Financial Statements were available to be issued, and has determined that there were no other events, other than what is disclosed below, which occurred requiring disclosure in or adjustments to the Financial Statements.

In January 2023, the Company entered into an Agreement Regarding Right of First Negotiation ("ROFN Agreement") with its Parent, FibroGenesis. In exchange for FibroGenesis' consent to amend the Certificate of Incorporation to a) eliminate upon IPO, Direct Listing, or Sale of the Company the Series "A" Preferred Stock $35,000 thousand liquidation preference, b) make the Series "B" Preferred Stock liquidation preference equal to Series "A" Preferred Stock, and c) to provide that upon IPO, Direct Listing, or Sale of the Company Series "A" Preferred Stock will be canceled for no consideration, FibroBiologics will agree to pay to FibroGenesis 15% of the gross proceeds from any equity investments in FibroBiologics prior to an IPO, Direct Listing or Sale of the Company. In addition, FibroBiologics will receive a five-year right of first negotiation if FibroGenesis decides to license externally any of its technology. In January 2023, the Company amended its Certificate of Incorporation to reflect these changes and paid $323 thousand to FibroGenesis for 15% of the gross proceeds from equity issued by the Company in December 2022.

In January 2023, the Company launched a campaign to raise up to $5,000 thousand by selling Series "B" Preferred Stock through a Regulation CF offering, which was oversubscribed. This offering has closed with $4,990 thousand raised and the Company has received net proceeds of $4,230 thousand to date. The Company is in the process of receiving the remaining proceeds from this offering and anticipates issuing 867,913 shares when the final distributions are received and reconciled. Pursuant to the ROFN Agreement, the Company has paid $634 thousand (15%) of these proceeds to FibroGenesis in March 2023 and expects to pay an additional $114 thousand to FibroGenesis in April 2023 after the final distributions are received.

In January 2023, the Company extended for an additional six months its remaining lease for temporary lab and office space.

In February 2023, the Company converted the principal and interest on $3,700 thousand of principal value of the 2022 Notes into 799,603 shares of Series "B" Preferred Stock.

In March 2023, the Company sold an additional 1,680,084 shares of Series "B" Preferred Stock for $10,325 thousand in a private placement. Pursuant to the ROFN Agreement, the Company has paid $1,549 thousand (15%) of these proceeds to FibroGenesis.

In April 2023, the Company amended its Certificate of Incorporation to authorize 10,000,000 shares of Common Stock, increase the number of authorized Series "B" Preferred Stock shares up to 5,000,000 shares, and to authorize 5,000,000 shares of Series "B-1" Preferred Stock with liquidation preference equal to the Series "A" and "B" Preferred Stock. The Company also converted the principal and interest on $1,600 thousand of principal value of the 2021 Notes and $300 thousand of principal value on the 2022 Notes into 353,713 shares of Series "B" Preferred Stock and sold 8,388 shares of Series "B-1" Preferred Stock for $153 thousand in a private placement. Pursuant to the ROFN Agreement, the Company will pay $23 thousand (15%) of these proceeds to FibroGenesis in April 2023.

In April 2023, FibroGenesis repaid in full the $300 thousand Parent company receivable.

13. Reverse Stock Split

In October 2023, the Company filed an amended and restated certificate of incorporation with the State of Delaware to immediately effect a 1-for-4 reverse stock split. All share and per share amounts have been adjusted on a retroactive basis to reflect the effect of the reverse stock split.

FibroBiologics, Inc.
Condensed Balance Sheets
(in thousands, except shares and per share data)

	June 30, 2023	December 31, 2022
	(Unaudited)	
Assets		
Current assets		
Cash and cash equivalents	$ 11,378	$ 2,266
Prepaid expenses	68	29
Parent company receivable	—	300
Other current assets	314	30
Total current assets	11,760	2,625
Property and equipment, net	77	—
Operating lease right-of-use asset, net	2,007	2,199
Total assets	$ 13,844	$ 4,824
Liabilities and stockholders' equity/(deficit)		
Current liabilities		
Accounts payable and accrued expenses	$ 598	$ 758
Operating lease liability, short-term	344	326
Derivative liability	—	538
Convertible notes payable, net of debt discount	—	5,451
Total current liabilities	942	7,073
Operating lease liability, long-term	1,549	1,747
Total liabilities	2,491	8,820
Stockholders' equity/(deficit)		
Net Parent investment	—	1,461
Preferred Stock, $0.00001 par; 20,000,000 total shares authorized; 8,750,000 Series "A" Preferred shares authorized, issued and outstanding as of June 30, 2023, and December 31, 2022	—	—
Preferred Stock, $0.00001 par; 20,000,000 total shares authorized; 5,000,000 Series "B" Preferred shares authorized; 4,171,445 shares issued and outstanding as of June 30, 2023; 381,658 shares issued and outstanding as of December 31, 2022	—	—
Preferred Stock, $0.00001 par; 20,000,000 total shares authorized; 5,000,000 Series "B-1" Preferred shares authorized; 13,888 shares issued and outstanding as of June 30, 2023; no shares issued and outstanding as of December 31, 2022	—	—
Non-voting Common Stock, $0.00001 par; 62,500,000 shares authorized; 28,230,842 shares issued and outstanding as of June 30, 2023, and December 31, 2022	1	1
Common Stock, $0.00001 par; 10,000,000 shares authorized; no shares issued and outstanding as of June 30, 2023, and December 31, 2022	—	—
Additional paid-in capital	23,800	2,414
Accumulated deficit	(12,448)	(7,872)
Total stockholders' equity/(deficit)	11,353	(3,996)
Total liabilities and stockholders' equity/(deficit)	$ 13,844	$ 4,824

The accompanying notes are an integral part of these Unaudited Condensed Financial Statements.

FibroBiologics, Inc.
Condensed Statements of Operations
(unaudited, in thousands, except shares and per share data)

	For the Six Months Ended June 30,	
	2023	**2022**
Operating expenses:		
Research and development	$ 1,021	$ 454
General, administrative and other	3,337	1,368
Total operating expenses	4,358	1,822
Loss from operations	(4,358)	(1,822)
Other income/(loss)	(72)	—
Interest expense	(146)	(213)
Net loss	$ (4,576)	$ (2,035)
Deemed dividend	(2,573)	—
Net loss attributable to common stockholders	(7,149)	$ (2,035)
Net loss per share, basic and diluted	$ (.25)	$ (.07)
Weighted-average shares outstanding, basic and diluted	28,230,842	28,230,842

The accompanying notes are an integral part of these Unaudited Condensed Financial Statements.

FibroBiologics, Inc.
Condensed Statements of Changes in Stockholders' Equity/(Deficit)
For the Six Months ended June 30, 2023 and 2022
(unaudited, in thousands, except shares)

	Net Parent Investment	Series "A" Preferred Stock		Series "B" Preferred Stock		Series "B-1" Preferred Stock		Non-voting Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity/ (Deficit)
		Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount			
Balance – December 31, 2022	**$ 1,461**	**8,750,000**	**$ —**	**381,658**	**$ —**	**—**	**$ —**	**28,230,842**	**$ 1**	**$ 2,414**	**$ (7,872)**	**$ (3,996)**
Sale of Series "B" Preferred Stock shares, net of direct costs	—	—	—	2,570,394	—	—	—	—	—	14,945	—	14,945
Sale of Series "B-1" Preferred Stock shares, net of direct costs	—	—	—	—	—	13,888	—	—	—	253	—	253
Issuance of Series "B" Preferred Stock shares for conversion of Notes and accrued interest	—	—	—	1,219,393	—	—	—	—	—	6,404	—	6,404
Deemed dividend related to ROFN Agreement derivative liability	(1,461)	—	—	—	—	—	—	—	—	(1,112)	—	(2,573)
Stock-based compensation expense	—	—	—	—	—	—	—	—	—	896	—	896
Net loss	—	—	—	—	—	—	—	—	—	—	(4,576)	(4,576)
Balance – June 30, 2023	**$ —**	**8,750,000**	**$ —**	**4,171,445**	**$ —**	**13,888**	**$ —**	**28,230,842**	**$ 1**	**$ 23,800**	**$ (12,448)**	**$ 11,353**

	Net Parent Investment	Series "A" Preferred Stock		Series "B" Preferred Stock		Series "B-1" Preferred Stock		Non-voting Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Equity/ (Deficit)
		Shares	Amount	Shares	Amount	Shares	Amount	Shares	Amount			
Balance – December 31, 2021	**$ 1,461**	**8,750,000**	**$ —**	**—**	**$ —**	**—**	**$ —**	**—**	**$ —**	**$ —**	**$ (2,751)**	**$ (1,290)**
Issuance of Non-Voting Common Stock to Parent company members	—	—	—	—	—	—	—	28,179,592	1	(1)	—	—
Stock-based compensation expense	—	—	—	—	—	—	—	51,250	—	168	—	168
Net loss	—	—	—	—	—	—	—	—	—	—	(2,035)	(2,035)
Balance – June 30, 2022	**$ 1,461**	**8,750,000**	**$ —**	**—**	**$ —**	**—**	**$ —**	**28,230,842**	**$ 1**	**$ 167**	**$ (4,786)**	**$ (3,157)**

The accompanying notes are an integral part of these Unaudited Condensed Financial Statements.

FibroBiologics, Inc.
Condensed Statements of Cash Flows
(unaudited, in thousands)

	For the Six Months Ended June 30,	
	2023	**2022**
Cash flows from operating activities		
Net loss	$ (4,576)	$ (2,035)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	896	168
Other loss on derivative liability	72	—
Amortization of convertible notes debt discount	81	118
Amortization of operating lease right-of-use asset	192	—
Depreciation expense	3	—
Changes in operating assets and liabilities:		
Change in prepaid expenses	(39)	37
Change in other current assets	(284)	—
Change in accounts payable and accrued expenses	174	186
Change in operating lease liability	(180)	—
Net cash used in operating activities	(3,661)	(1,526)
Cash flows from investing activities		
Purchases of fixed assets	(80)	—
Net cash used in investing activities	(80)	—
Cash flows from financing activities		
Payment of loan to Parent	—	(225)
ROFN Agreement payments to Parent	(2,645)	—
Repayment of note receivable from Parent	300	—
Proceeds from issuance of convertible notes	—	4,300
Proceeds from issuance of Series “B” Preferred Stock, net of direct costs	14,945	—
Proceeds from issuance of Series “B-1” Preferred Stock, net of direct costs	253	—
Net cash provided by financing activities	12,853	4,075
Net increase in cash and cash equivalents	9,112	2,549
Cash and cash equivalents, beginning of period	2,266	407
Cash and cash equivalents, end of period	$ 11,378	$ 2,956
Supplemental disclosure of cash flow information:		
Cash paid for income taxes	$ —	$ —
Cash paid for interest	$ 1	$ —
Supplemental disclosure of non-cash investing and financing activities:		
Addition to derivative liability for debt issuance discount	$ —	$ 538
Obtaining operating lease right-of-use asset and liability	$ —	$ 2,799
Issuance of Series “B” Preferred Stock for conversion of Notes and accrued interest	$ 5,866	$ —
Elimination of derivative liability for conversion of Notes	$ 538	$ —

The accompanying notes are an integral part of these Unaudited Condensed Financial Statements.

1. Organization, Description of Business, and Liquidity

Organization and Business

FibroBiologics, Inc. (the "Company" or "FibroBiologics") was originally formed as a limited liability company ("LLC") under the laws of the State of Texas on April 8, 2021 ("Inception") and then converted to a Delaware corporation on December 14, 2021. FibroBiologics is an early stage, cell therapy company headquartered in Houston, Texas, developing innovative treatments for chronic diseases using fibroblast cells. The Company's primary focus is the initiation and progression of preclinical studies and clinical-stage U.S. Food and Drug Administration trials related to fibroblast treatments for Degenerative Disc Disease, Multiple Sclerosis, Cancer, Wound Healing and other diseases. Prior to Inception, preclinical research and development related to these disease pathways took place under the parent company, SpinalCyte, LLC (the "Parent" or "FibroGenesis").

Going Concern and Management's Plan

The Company has incurred operating losses since Inception and expects such losses to continue in the future as it builds infrastructure, develops intellectual property and conducts research and development activities. The Company has primarily relied on a combination of angel investors and private debt placements to funds its operations. As of June 30, 2023, the Company had an accumulated deficit of $12,448 thousand and cash and cash equivalents of $11,378 thousand. A transition to profitability will depend on the successful development, approval and commercialization of product candidates and on the achievement of sufficient revenues to support the Company's cost structure. The Company currently does not generate revenues and may never achieve profitability. Unless and until such time that revenue and net income are generated, the Company will need to continue to raise additional capital. As further described in Note 7, management has entered into a share purchase agreement as of November 12, 2021. In the event of a direct listing or an initial public offering on a nationally recognized U.S. stock exchange, this agreement will provide the Company with access to additional liquidity. As further described in Note 6, during the first six months of 2023 the Company raised $4,990 thousand through a crowdfunding offering and $10,325 thousand through a private placement offering. As a result, the Company believes it has adequate capital to fund its current operating plan for at least the next 12 months from the date of issuance of these Financial Statements.

Segments

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision maker in making decisions regarding resource allocation and assessing performance. The chief executive officer, who is the chief operating decision maker, reviews financial information on an aggregate basis for purposes of allocating resources and evaluating financial performance. The Company operates and manages its business as a single operating segment and therefore one reportable segment.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying Unaudited Condensed Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP"). The accompanying condensed balance sheet as of June 30, 2023, condensed statements of operations for the six months ended June 30, 2023 and 2022, condensed statements of stockholders' equity/(deficit) for the six months ended June 30, 2023 and 2022, and condensed statements of cash flows for the six months ended June 30, 2023 and 2022, are unaudited. These Unaudited Condensed Financial Statements have been prepared in accordance with the rules and regulations of the United States Securities and Exchange Commission (the "SEC") for interim financial information. Accordingly, they do not include all of the information and footnotes required by GAAP for complete financial statements. These Unaudited Condensed Financial Statements should be read in conjunction with the audited financial statements and the accompanying notes for the year ended December 31, 2022. The unaudited condensed financial statements have been prepared on the same basis as the annual consolidated financial statements and, in the opinion of management, reflect all adjustments (consisting of normal recurring adjustments) necessary to state fairly the Company's financial position as of June 30, 2023, the results of operations for the six months ended June 30, 2023 and 2022, the unaudited condensed statements of stockholders' equity for the six months ended June 30, 2023 and 2022 and the unaudited condensed statements of cash flows for the six months ended June 30, 2023 and 2022. The December 31, 2022, condensed balance sheet included herein was derived from the audited financial statements, but it does not include all disclosures or notes required by GAAP for complete financial statements.

The financial data and other information disclosed in these notes to the condensed financial statements related to the six months ended June 30, 2023 and 2022, are unaudited. Interim results are not necessarily indicative of results for an entire year.

During the period from January 1, 2021, to its formation on April 8, 2021, the Company operated as a line of business of FibroGenesis rather than as a separate stand-alone entity. Consequently, prior to the Company's formation on April 8, 2021, the financial statements were derived from the historical accounting records of the Parent. All general and administrative expenses and research and development expenses directly associated with the business activity of the Company that were originally incurred by the Parent from January 1, 2021, through the Company's formation on April 8, 2021, were allocated and included in the Company's financial statements. The resulting net Parent investment is presented within stockholders' equity/(deficit) and represents the Parent's interest in the recorded net assets of the Company.

The accompanying Unaudited Condensed Financial Statements do not include any allocations from the Parent other than the net Parent investment included in the beginning stockholders' equity/(deficit) and have been prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP").

Use of Estimates

The preparation of the 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 periods. These estimates are based on information available as of the date of the Financial Statements; therefore, actual results could differ from those estimates and assumptions.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash and cash equivalents. The Company has significant cash balances at financial institutions, which, throughout the year, regularly exceed the federally insured limit of $250,000. Any loss incurred or a lack of access to such funds could have a significant adverse impact on the Company's financial condition, results of operations and cash flows.

Risks and Uncertainties

The Company is subject to certain risks and uncertainties, including, but not limited to changes in any of the following areas that the Company believes could have a material adverse effect on the future financial position or results of operations: the timing of, and the Company's ability to advance its current and future product candidates into and through clinical development; costs and timelines associated with the manufacture of clinical supplies of the Company's product candidates; regulatory approval and market acceptance of its product candidates; performance of third-party contract research organizations ("CROs") and contract manufacturing organizations ("CMOs"); competition from pharmaceutical companies with greater financial resources or expertise; protection of the intellectual property, litigation or claims against the Company based on intellectual property, or other factors; the need to obtain additional funding; and its ability to attract and retain employees necessary to support its growth. Disruption from the operations of CROs, CMOs or suppliers would likely have a negative impact on the Company's business, financial position and results of operations.

Cash and Cash Equivalents

Cash and cash equivalents consist of unrestricted cash balances and short-term, liquid investments with an original maturity date of three months or less at the time of purchase.

Property and Equipment

Property and equipment include laboratory equipment that is recorded at cost and depreciated using the straight-line method over the estimated useful lives of five years. Depreciation expense of $3 thousand was recognized for the six months ended June 30, 2023. No depreciation expense was recognized for the six months ended June 30, 2022. Depreciation expense is classified in research and development expense in the accompanying Statements of Operations.

Property and equipment are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets might not be recoverable. Conditions that would necessitate an impairment assessment include a significant decline in the observable market value of an asset, a significant change in the extent or manner in which an asset is used, or a significant adverse change that would indicate that the carrying amount of an asset or group of assets is not recoverable. For long-lived assets to be held and used, the Company will recognize an impairment loss only if the carrying amount is not recoverable through its undiscounted cash flows and measure any impairment loss based on the difference between the carrying amount and estimated fair value. There were no such losses for the six months ended June 30, 2023 and 2022.

Fair Value Measurements

Accounting Standards Codification ("ASC") 820, *Fair Value Measurement*, establishes a fair value hierarchy for instruments measured at fair value that distinguishes between assumptions based on market data (observable inputs) and the Company's own assumptions (unobservable inputs). Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the assets or liability and are developed based on the best information available in the circumstances. ASC 820 identifies fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. As a basis for considering market participant assumptions in fair value measurements, ASC 820 establishes a three-tiered value hierarchy that distinguishes between the following:

Level 1 - Quoted market prices in active markets for identical assets or liabilities.

Level 2 - Inputs other than Level 1 inputs that are either directly or indirectly observable, such as quoted market prices, interest rates and yield curves.

Level 3 - Unobservable inputs for the asset or liability (i.e., supported by little or no market activity). Level 3 inputs include management's own assumptions about the assumptions that market participants would use in pricing the asset or liability (including assumptions about risk).

Categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

Research and Development

Research and development costs are charged to expense as incurred. Research and development costs consist of costs incurred in performing research and development activities, including salaries and bonuses, scientist recruiting costs, employee benefits, facilities costs, laboratory supplies, manufacturing expenses, preclinical expenses, research materials, and consulting and other contracted services. Costs for certain research and development activities are recognized based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the Financial Statements as prepaid or accrued research and development.

Patent Costs

As the Company continues to incur costs to obtain market approval of patented technology, patent costs are expensed as incurred in general, administrative and other expense in the Statement of Operations. Costs include fees to renew or extend the term of recognized intangible assets, patent defense costs, and patent application costs. Management will continue to expense such costs until market approval is obtained through regulatory approval by the appropriate governing body.

Income Taxes

On December 14, 2021, the Company converted from a partnership LLC to a C corporation. Subsequent to this date, the Company began accounting for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Valuation allowances are established when necessary to reduce deferred tax assets to an amount that is more likely than not to be realized.

Under the provisions of ASC 740-10, *Income Taxes*, the Company evaluates uncertain tax positions by reviewing against applicable tax law all positions taken by the Company with respect to tax years for which the statute of limitations is still open. ASC 740-10 provides that a tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes, based on the technical merits. The Company recognizes interest and penalties related to the liability for unrecognized tax benefits, if any, as a component of the income tax expense line in the accompanying Statements of Operations.

3. Net Loss Per Share Attributable to Common Stockholders

The following table summarizes the computation of basic and diluted net loss per share attributable to common stockholders of the Company:

	Six Months Ended June 30,	
(in thousands, except share and per share amounts)	2023	2022
Numerator:		
Net loss	$ (4,576)	$ (2,035)
Adjustment to numerator for earnings per share:		
Deemed dividend	(2,573)	—
Net loss attributable to common stockholders	$ (7,149)	$ (2,035)
Denominator:		
Weighted-average number of common shares outstanding, basic and diluted	28,230,842	28,230,842
Net loss per common share attributable to common stockholders, basic and diluted	$ (0.25)	$ (0.07)

As further described in Note 6, the Company issued 28,230,842 shares of non-voting common stock on August 18, 2022. The weighted average number of shares outstanding for the six months ended June 30, 2023 and 2022, is based upon the non-voting common stock shares issued on August 18, 2022. Because the issuance of nonvoting common stock shares was treated as a stock split for accounting purposes, these shares are treated as having been issued on January 1, 2022, and outstanding for the entire six months ended June 30, 2023 and 2022.

As further described in Note 10, the Company agreed to pay to FibroGenesis 15% of the gross proceeds from any equity investments in FibroBiologics prior to an IPO, Direct Listing or Sale of the Company to eliminate upon the occurrence of such event the Series A Preferred Stock and its $35 million liquidation preference. This redemption of preferred stock created a derivative liability that exceeded the net Parent Investment by $1,112 thousand, which was recorded in additional paid-in capital and is reflected here as a reduction of the amount available to common stockholders in the calculation of earnings per share.

The Company had $5,600 thousand of convertible notes outstanding as of June 30, 2022, which could have been converted into common stock in the event that the Company sold and issued shares of capital stock in excess of $10,000 thousand, and were all converted by June 30, 2023, into shares of Series B Preferred Stock as further described in Note 5. As of June 30, 2022, the estimated number of shares of common stock that would have been issued upon conversion was 790,459 shares. For the six months ended June 30, 2023 and 2022, the Company reported net losses and, accordingly, potential common shares were not included since such inclusion would have been anti-dilutive. As a result, the Company's basic and diluted net losses per share are the same because it generated a net loss in all periods presented.

4. Fair Value of Financial Instruments

As of December 31, 2022, the Company measured its derivative liability related to the conversion option feature in the 2022 Notes, as described in Note 5, at fair value. This derivative liability was classified within Level 3 of the value hierarchy because the liability was based upon a valuation model that used inputs and assumptions including potential outcomes, interest rates, probabilities, and timing. As of June 30, 2023, the 2022 Notes had been converted, which eliminated the derivative liability, and the Company did not have any financial instruments measured at fair value on a recurring basis.

The carrying amounts of cash and cash equivalents, prepaid expenses, other current assets, accounts payable, accrued expenses, convertible notes payable, and Parent company payable and receivable approximate their fair values due to their short-term maturities.

There were no transfers in or out of Level 1, Level 2 or Level 3 assets and liabilities for the six months ended June 30, 2023 and 2022.

5. Convertible Notes Payable

The Company entered into multiple convertible promissory note agreements in December 2021 (collectively, the "2021 Notes"). Under the 2021 Notes, the Company received $1,300 thousand, which accrues simple interest at a rate of 6.0% per annum and matures in the event of an initial public offering of the Company. Upon maturity of the 2021 Notes, the holders may elect to receive cash payment in full for the outstanding principal and interest or elect a one-year extension at the discretion of the holders of the 2021 Notes.

In the event that the Company issues and sells shares of its capital stock in excess of $10,000 thousand, the outstanding balance of the 2021 Notes and accrued interest may be converted into a fixed number of shares of common stock, subject only to typical anti-dilution provisions for any recapitalization that may occur.

Based on the terms of the 2021 Notes, the Company evaluated the conversion option feature in accordance with ASC 815, *Derivatives and Hedging*. It provides three criteria that, if met, require companies to bifurcate conversion options from their host instruments and account for them as freestanding derivative financial instruments. These three criteria include circumstances in which (a) the economic characteristics and risks of the embedded derivative instrument are not clearly and closely related to the economic characteristics and risks of the host contract, (b) the hybrid instrument that embodies both the embedded derivative instrument and the host contract is not re-measured at fair value under otherwise applicable generally accepted accounting principles with changes in fair value reported in earnings as they occur and (c) a separate instrument with the same terms as the embedded derivative instrument would be considered a derivative instrument.

At the inception of the 2021 Notes, and at December 31, 2022, the Company determined that an embedded derivative for the conversion feature did not meet the criteria because it met the "indexed to the entity's own stock" exception and therefore was not required to be bifurcated from the host instrument.

The Company issued additional convertible promissory notes between January and April 2022 with a total principal amount of $4,300 thousand and a one-year maturity (collectively, the "2022 Notes"). The 2022 Notes may be converted at the lesser of a) a 15% discount to the offering price of the Company's common stock in the event of an initial public offering of the Company or b) the quotient of $200,000 thousand divided by total equity interests prior to the dilution from the offering. The conversion option feature in the 2022 Notes was evaluated in accordance with ASC 815, and a derivative liability for the $538 thousand estimated fair value of the conversion option was recorded at the time the notes were issued and as of December 31, 2022. An offsetting discount on the issuance of the notes was recorded and is being amortized to interest expense over the expected life of the 2022 Notes.

The interest expense, excluding amortization of the discount recorded on the 2022 Notes, on the 2021 and 2022 Notes for the six months ended June 30, 2023 and 2022, was $65 thousand and $95 thousand, respectively. Accrued interest was outstanding and included within accounts payable and accrued expenses at December 31, 2022.

In February 2023, the Company converted the principal and interest on $3,700 thousand of principal value of the 2022 Notes into 799,603 shares of Series "B" Preferred Stock. In April 2023, the Company also converted the principal and interest on $1,300 thousand of principal value of the 2021 Notes and $300 thousand of principal value on the 2022 Notes into 353,713 shares of Series "B" Preferred Stock. In June 2023, the Company converted the principal and interest on $300 thousand of principal value of the 2022 Notes into 66,077 shares of Series "B" Preferred Stock. No interest was outstanding and included within accounts payable and accrued expenses at June 30, 2023.

The convertible debt balances consisted of the following at June 30, 2023, and December 31, 2022:

(in thousands)	June 30, 2023	December 31, 2022
Convertible notes principal	$ —	$ 5,600
Convertible notes discount	—	(149)
Convertible notes payable, net of discount	$ —	$ 5,451

6. Stockholders' Equity/(Deficit) / Net Parent Investment

Authorized Capital - As of June 30, 2023 and 2022, the Company authorized 20,000,000 and 12,500,000 preferred stock shares, respectively, and has issued 8,750,000 Series "A" Preferred Stock shares to FibroGenesis, which were tendered pursuant to the formation of the Company in exchange for the contribution of certain in-process research and development and patent assets through Patent Assignment and Intellectual Property Cross-License Agreements. The Series "A" Preferred Stock shares have the right to vote and rank prior to non-voting common stock and common stock with respect to payment of dividends and distributions and upon liquidation, dissolution, winding-up or otherwise. In addition, the Series "A" Preferred Stock has a liquidation preference equal to $35,000 thousand to be allocated among the holders of the Series "A" Preferred Stock shares in the event of a liquidation, dissolution, or winding-up of the Company, and each share of Series "A" Preferred Stock may be converted into one share of common stock at any time at the election of the holder of such shares of Series "A" Preferred Stock. Unless otherwise elected by the holder(s), a merger or consolidation in which the Company is not the majority surviving entity or the sale of all or substantially all of the assets of the corporation will be a deemed liquidation event. The Company has also authorized 62,500,000 shares of non-voting common stock, and has issued during the year ended December 31, 2022, a total of 28,230,842 shares. In August 2022, the Company issued 28,179,592 shares of non-voting common stock to its Parent, which in turn distributed the shares to its members. This issuance of non-voting common stock was accounted for as stock split and no proceeds were received by the Company. The Company also issued to its board of directors, a consultant, and an employee an additional 51,250 total shares in 2022 and recorded $168 thousand of expense for the issuance of these shares, which was based upon a third-party valuation of the shares at the time of issuance.

In December 2022, the Company amended its Certificate of Incorporation to authorize 2,500,000 shares of Series "B" Preferred Stock and issued 381,658 shares in exchange for $2,150 thousand. The Series "B" Preferred Stock has a liquidation preference after Series "A" Preferred Stock and prior to Common Stock and Non-Voting Common Stock. The Series "B" Preferred Stock has voting rights and will automatically convert into Common Stock upon closing of an IPO transaction, as defined in the Company's Amended and Restated Certificate of Incorporation.

In January 2023, to reflect the ROFN Agreement with its Parent, as further discussed in Note 10, the Company amended its Certificate of Incorporation to a) eliminate upon IPO, Direct Listing, or Sale of the Company the Series "A" Preferred Stock $35,000 thousand liquidation preference, b) make the Series "B" Preferred Stock liquidation preference equal to Series "A" Preferred Stock, and c) to provide that upon IPO, Direct Listing, or Sale of the Company Series "A" Preferred Stock will be canceled for no consideration.

In April 2023, the Company amended its Certificate of Incorporation to authorize 10,000,000 shares of Common Stock, increase the number of authorized Series "B" Preferred Stock shares up to 5,000,000 shares, and to authorize 5,000,000 shares of Series "B-1" Preferred Stock with liquidation preference equal to the Series "A" and "B" Preferred Stock. The Series "B-1" Preferred Stock has voting rights and will automatically convert into Common Stock upon closing of an IPO transaction, as defined in the Company's Amended and Restated Certificate of Incorporation.

During the first six months of 2023, the Company raised $4,620 thousand, net of fees, through a Regulation CF offering with 890,310 shares of Series "B" Preferred Stock issued, raised $10,325 thousand in a private placement with 1,680,084 shares of Series "B" Preferred Stock issued, and raised $253 thousand in a private placement with 13,888 shares of "B-1" Preferred Stock issued.

7. Share Subscription Agreement

On November 12, 2021, the Company entered into a Share Purchase Agreement with certain investors for the sale of up to $100,000 thousand of common stock (the "Aggregate Limit"). This agreement is contingent upon the Company achieving a public listing of its common stock. Major terms of the agreement include a commitment fee of 2% of the Aggregate Limit, which is due no later than one year after public listing even if no drawdowns are taken, and five-year warrants issued to the investors at the time of public listing to purchase common stock shares equal to 4% of the total equity interests of the Company at the lesser of a) the price per share at the time of the public listing or b) the quotient of $700,000 thousand divided by the total number of equity interests (fully diluted common shares). The Company may request a drawdown, or sale of common stock shares to the investors, over the five-year term of this agreement following the public listing unless terminated earlier. The amount of the drawdowns requested is limited by the trading volumes of the Company's common stock shares over the 30-day period preceding the drawdown, and the price per share is equal to 90% of the average price per share over that same period. A 1% fee must be paid to the investors if the Company is sold in a private sale transaction rather than completing a public listing of its shares.

8. Income Taxes

A reconciliation of the income tax benefit computed using the federal statutory income tax rate to the Company's effective income tax rate is as follows:

	Six Months Ended June 30, 2023	Six Months Ended June 30, 2022
Federal statutory rate	(21.0)%	(21.0)%
Permanent items	—	—
True up prior year net operating loss deferred tax asset	—	(15.4)
Other changes	(2.2)	(0.8)
Change in valuation allowance	23.2	37.2
Total	0.0%	0.0%

The components of the Company's net deferred tax assets are as follows:

(in thousands of dollars)	June 30, 2023	December 31, 2022
Deferred tax assets:		
Net operating loss carryforwards	$ 1,694	$ 896
Lease liability	397	435
Capitalized research and development	491	299
Derivative liability	—	31
Accrued liabilities	94	81
Stock compensation	73	17
Deferred tax assets	2,749	1,759
Deferred tax liabilities:		
Lease right-of-use asset	(421)	(462)
Unamortized debt discount	—	(31)
Deferred tax liabilities	(421)	(493)
Less: valuation allowance	(2,328)	(1,266)
Net deferred tax assets	$ —	$ —

The Company was initially formed as an LLC and was converted to a Delaware corporation in December 2021. As a result of generating net operating losses during the years ended December 31, 2022 and 2021, the Company had no income tax expense for years ended December 31, 2022 and 2021. As of June 30, 2023, the Company had U.S. federal net operating loss ("NOL") carryforwards of $8,069 thousand. The federal NOL carries forward indefinitely and may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest. This could limit the amount of tax attributes that can be utilized annually to offset future taxable income or tax liabilities. Subsequent ownership changes may further affect the limitation in future years.

Effective for tax years beginning after December 31, 2021, taxpayers are required to capitalize any expenses incurred that are considered incidental to research and experimentation (R&E) activities under Internal Revenue Code ("IRC") Section 174. While taxpayers historically had the option of deducting these expenses under IRC Section 174, the December 2017 Tax Cuts and Jobs Act mandates capitalization and amortization of R&E expenses for tax years beginning after December 31, 2021. Expenses incurred in connection with R&E activities in the United States must be amortized over a 5-year period if incurred, and R&E expenses incurred outside the United States must be amortized over a 15-year period. R&E activities are broader in scope than qualified research activities considered under IRC Section 41 (relating to the research tax credit). For the year ended December 31, 2022, the Company performed an analysis based on available guidance and determined that it will continue to be in a loss position even after the required capitalization and amortization of its R&E expenses. The Company will continue to monitor this issue for future developments, but it does not expect R&E capitalization and amortization to require it to pay cash taxes now or in the near future. The Company has included the impact of this provision, which resulted in a deferred tax asset of approximately $491 thousand as of June 30, 2023.

Management has evaluated the positive and negative evidence bearing upon the realizability of the Company's net deferred tax assets and has determined that it is more likely than not that the Company will not recognize the benefits of the net deferred tax assets. As a result, the Company has recorded a full valuation allowance at June 30, 2023, and December 31, 2022. The Company will continue to assess the realizability of its deferred tax assets going forward and will adjust the valuation allowance as needed.

As of June 30, 2023, and December 31, 2022, the Company had no uncertain tax positions. The Company recognizes both interest and penalties associated with unrecognized tax benefits as a component of income tax expense. The Company has not recorded any interest or penalties for unrecognized tax benefits since its inception.

9. Leases, Commitments and Contingencies

The Company has elected in accordance with ASC 842-20-25-2 an accounting policy to not record short-term leases, defined as those with terms of 12 months or less, on the balance sheet. Rent expense recorded under leases, for financial statement purposes, is recognized on a straight-line basis over the lease term based on the most recent contractual terms available.

As of December 31, 2021, the Company had entered into two short-term lease agreements for lab and office space. The Company opted on March 30, 2022, to extend the lease term for one of its leases for lab and office space, with a commencement date for the lease extension on May 1, 2022. The extended lease term was 126 months and was accounted for as an operating lease under the ASC 842 guidance for lease accounting. A right-of-use lease asset and tenant improvement allowance receivable with a combined total of $2,799 thousand and a lease liability of $2,799 thousand were recorded at the time of the extension. This lease was terminated as of July 31, 2022, and the remaining balances of the right-of-use asset, tenant improvement allowance receivable, and lease liability were written off.

The Company expanded the scope and extended for six months the term for the remaining lease for temporary lab and office space on July 1, 2022, then further expanded the scope on August 1, 2022, and October 7, 2022, which increased the monthly license fee to $15 thousand per month. In January 2023, the Company extended this lease for an additional six months and it expired at the end of June 2023. This lease for temporary lab and office space was accounted for as a short-term lease.

In October 2022, the Company entered into a lease agreement for office space with a term of 62 months, which expires on November 30, 2027. This lease will be accounted for as an operating lease under the ASC 842 guidance for lease accounting. A right-of-use lease asset and lease liability of $2,293 thousand each were recorded at inception of the lease term using a discount rate of 7.5%.

In June 2023, the Company entered into a new lease for temporary lab and office space for its research operations. This lease has a term of 12 months and monthly rent of $6 thousand and will be accounted for as a short-term lease. This lease commences in August 2023.

Rent expense for the six months ended June 30, 2023 and 2022, was $359 thousand and $107 thousand, respectively. As of June 30, 2023, noncancelable lease payments under operating leases were $2,230 thousand and noncancelable lease payments under short-term leases were $72 thousand.

As of June 30, 2023, future minimum payments during the remaining period and the next five years are as follows (in thousands):

(in thousands of dollars)	
2023	$ 212
2024	477
2025	488
2026	544
2027	509
Thereafter	—
Total lease payments	2,230
Less: imputed interest	(337)
Total lease liabilities	1,893
Less: current lease liabilities	(344)
Total non-current lease liabilities	$ 1,549

10. Related Party Transactions

As of December 31, 2021, the Company had an outstanding related party Parent company payable of $225 thousand. The debt was held by FibroGenesis, and was due April 1, 2022, with a six-month extension option available at the discretion of FibroBiologics. The Company repaid in April 2022 the remaining Parent company payable of $225 thousand. In July 2022, the Company loaned $300 thousand to the Parent on a one-year note bearing no interest. In October 2022, the Company loaned $60 thousand to the Parent on a one-year note bearing no interest and this note was repaid before December 31, 2022. In April 2023, FibroGenesis repaid in full the $300 thousand Parent company receivable.

As described in Note 6, the Company acquired from FibroGenesis certain in-process research and development and patent assets through Patent Assignment and Intellectual Property Cross-License Agreements. The Patent Assignment Agreement transferred the right, title and interest in and to certain patents from FibroGenesis to the Company for further development. The Intellectual Property Cross-License Agreement grants to the Company exclusive rights to patents owned by FibroGenesis in a limited field of use, which includes the diagnosis, treatment, prevention and palliation of a) spinal diseases, disorders, or conditions, b) cancer, c) orthopedics diseases, disorders or conditions, and d) multiple sclerosis.

In January 2023, the Company entered into an Agreement Regarding Right of First Negotiation ("ROFN Agreement") with its Parent, FibroGenesis. In exchange for FibroGenesis' consent to amend the Certificate of Incorporation to a) eliminate upon IPO, Direct Listing, or Sale of the Company the Series "A" Preferred Stock $35,000 thousand liquidation preference, b) make the Series "B" Preferred Stock liquidation preference equal to Series "A" Preferred Stock, and c) to provide that upon IPO, Direct Listing, or Sale of the Company Series "A" Preferred Stock will be canceled for no consideration, FibroBiologics agreed to pay to FibroGenesis 15% of the gross proceeds from any equity investments in FibroBiologics prior to an IPO, Direct Listing or Sale of the Company. In addition, FibroBiologics will receive a five-year right of first negotiation if FibroGenesis decides to license externally any of its technology. In January 2023, the Company amended its Certificate of Incorporation to reflect these changes, recorded a derivative liability of $2,573 thousand for the expected future payments to FibroGenesis, and paid $323 thousand to FibroGenesis for 15% of the gross proceeds from equity issued by the Company in December 2022. Based on its relationship to Series "A" Preferred Stock as described above, the derivative liability was recorded first against the net Parent Investment and then to Additional paid-in capital after the net Parent Investment was eliminated. During the first six months of 2023, the Company has raised gross proceeds of $15,478 thousand from equity issuances and has paid $2,322 thousand (15%) of these proceeds to FibroGenesis. Amounts paid in excess of the derivative liability are recorded as other losses in the statement of operations. There was no derivative liability or payable to FibroGenesis as of June 30, 2023.

11. Share-based Compensation

The Company adopted on August 10, 2022, and the stockholders approved on August 18, 2022, the 2022 Stock Plan (the "Plan"). The Plan provides for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, and other stock awards. The Plan, through the grant of stock awards, is intended to help the Company secure and retain the services of eligible award recipients, provide incentives for such persons to exert maximum efforts for the success of the Company and provide a means by which the eligible recipients may benefit from increases in value of the common stock. In September 2022, the Company issued a total of 101,250 options with a strike price of $3.28 per share to employees, directors, and scientific advisory board members under this Plan. In February 2023, the Company issued an additional total of 3,689,750 options with a strike price of $2.28 per share to employees and directors under this Plan. Generally, awards granted by the Company vest over four years and have an exercise price equal to the estimated fair value of the common stock as determined by the board of directors with consideration given to contemporaneous valuations of the Company's common stock prepared by an independent third-party valuation firm.

As of June 30, 2023, and December 31, 2022, there were 8,709,000 and 12,398,750 shares, respectively, available for future issuance under the Plan.

Stock-based compensation expense is recognized in the Statements of Operations as follows:

(in thousands of dollars)	For the Six Months Ended June 30, 2023	2022
Research and development	$ 133	$ —
General, administrative and other	763	168
Total stock-based compensation expense	$ 896	$ 168

Stock-based compensation expense for the six months ended June 30, 2022, includes $168 thousand of expense for non-voting common stock issued to the Board of Directors and consultants.

Unrecognized stock-based compensation costs related to unvested awards and the weighted-average period over which the costs are expected to be recognized as of June 30, 2023, are as follows:

	Stock Options
Unrecognized stock-based compensation expense (in thousands)	$ 5,914
Expected weighted-average period compensation costs to be recognized (years)	3.5

A summary of the Company's stock option activity is as follows:

	Stock Options	Weighted-Average Exercise Price per Share	Weighted-Average Remaining Contractual Life (years)	Aggregate Intrinsic Value (in thousands)
Outstanding as of December 31, 2022	101,250	$ 3.28	9.7	—
Granted	3,689,750	$ 2.28	10.0	—
Exercised	—	$ —	—	—
Forfeited/Canceled	—	$ —	—	—
Outstanding as of June 30, 2023	3,791,000	$ 2.36	9.5	—
Exercisable as of June 30, 2023	27,361	$ 3.28	9.1	—

The fair value of stock options granted to employees, directors, and consultants was estimated on the date of grant using the Black-Scholes option pricing model using the following assumptions:

Assumptions:	Six Months Ended June 30, 2023
Risk-free interest rate	3.9%
Expected volatility	90%
Expected term (years)	7.0
Expected dividend	0%

During the six months ended June 30, 2023, the weighted-average grant date fair value of the options granted was $1.80 per share.

12. Subsequent Events

The Company has evaluated subsequent events through August 16, 2023, the date the Unaudited Condensed Financial Statements were available to be issued, and has determined that there were no other events, other than what is disclosed below, which occurred requiring disclosure in or adjustments to the Financial Statements.

In July 2023, the Company sold 5,500 shares of its Series B-1 Preferred Stock for $100 thousand.

13. Reverse Stock Split

In October 2023, the Company filed an amended and restated certificate of incorporation with the State of Delaware to immediately effect a 1-for-4 reverse stock split. All share and per share amounts have been adjusted on a retroactive basis to reflect the effect of the reverse stock split.

, 2023

Through and including , 2023 (the 25th day after the listing date of our common stock), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. *Other Expenses of Issuance and Distribution*

The following table sets forth the costs and expenses payable by us in connection with this registration statement and the listing of our common stock. All amounts shown are estimates except for the SEC registration fee and the Nasdaq listing fee.

	Amount
SEC registration fee	$ 10,969
Nasdaq listing fee	270,000
Legal fees and expenses	310,000
Accounting fees and expenses	222,000
Advisory fee	200,000
Printing and engraving expenses	6,000
Transfer agent fees and expenses	12,850
Miscellaneous expenses	5,000
Total	$ 1,036,819

Item 14. *Indemnification of Directors and Officers*

We are incorporated under the laws of the State of Delaware. Section 145 of the DGCL provides that a Delaware corporation may indemnify any person who was or is, or is threatened to be made, a party to any threatened, pending, or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding, if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful.

Section 145 of the DGCL also provides that Delaware corporation may indemnify any person who was or is, or is threatened to be made, a party to any threatened, pending, or completed action or suit by or in the right of the corporation by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit 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 corporation, except that no indemnification of any claim, issue or matter is permitted without judicial approval if such person is adjudged to be liable to the corporation.

Under the DGCL, where a present or former officer or director is successful on the merits or otherwise in the defense of any action referred to above, or in defense of any claim, issue or matter therein, the corporation must indemnify such present or former officer or director against the expenses (including attorney's fees) which such present or former officer or director actually and reasonably incurred in connection with such action (or claim, issue or matter therein).

Section 102(b)(7) of the DGCL permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director, except for liability for any:

- breach of a director's duty of loyalty to the corporation or its stockholders;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or unlawful stock purchase or redemption; or
- transaction from which the director derived an improper personal benefit.

Our amended and restated certificate of incorporation which will become effective in connection with the effectiveness of the registration statement of which this prospectus forms a part, will contain a provision that precludes any director of ours from being personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except for the aforementioned liabilities which we are not permitted to eliminate or limit under Section 107(b)(7) of the DGCL.

In addition, our amended and restated certificate of incorporation and bylaws, in each case, which will become effective in connection with the effectiveness of the registration statement of which this prospectus forms a part, will require us to indemnify, and advance expenses to, to the fullest extent permitted by law, any person who was or is, or is threatened to be made, a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative by reason of the fact that the person is or was our director, officer, employee or agent, or is or was serving at our request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise.

Our amended and restated bylaws which will become effective in connection with the effectiveness of the registration statement of which this prospectus forms a part, will further authorize us to purchase and maintain insurance on behalf of any person who is or was our director, officer, employee or agent, or is or was serving at our request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, enterprise or nonprofit entity against any liability asserted against such person and incurred by such person in any such capacity, or arising out of such person's status as such, whether or not we would have the power to indemnify such person against such liability under the provisions of the DGCL.

We plan to purchase an insurance policy covering our officers and directors with respect to certain liabilities, including liabilities arising under the Securities Act, or otherwise. In addition, in connection with the effectiveness of the registration statement of which this prospectus forms a part, we intend to enter into separate indemnification agreements with each of our directors and executive officers.

Item 15. ***Recent Sales of Unregistered Securities***

The following sets forth information regarding all unregistered securities we have issued since our inception.

Series A Preferred Stock

In connection with our formation, on April 8, 2021, we issued the equivalent of 8,750,000 shares of our Series A Preferred Stock to FibroGenesis in return for rights to certain intellectual property through the Patent Assignment Agreement and the Intellectual Property Cross-License Agreement. See "*Business—Intellectual Property*" for additional details. No underwriters were involved in the sale of the securities. The sale of the securities were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering.

Non-Voting Common Stock

In January 2022, we issued an aggregate of the equivalent of 37,500 shares of our non-voting common stock for no cash consideration to five of our independent directors, the equivalent of 7,500 shares each, for their service on our board of directors. The issuance of the securities was deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering.

In March 2022, we issued the equivalent of 12,500 shares and 1,250 shares, respectively, of our non-voting common stock for no cash consideration to Dr. An and Dr. Khoja for services provided. The issuance of the securities was deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering.

In August 2022, we issued the equivalent of 28,179,592 of our nonvoting common stock to our parent company, FibroGenesis. The sale of the securities was deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering.

Series B Preferred Stock

In December 2022, we issued an aggregate of the equivalent of 381,658 shares of Series B Preferred Stock to investors in a private placement, at a price the equivalent of $6.76 with respect to the equivalent of 318,049 shares, with the remaining equivalent of 63,609 shares being bonus shares. The sales of the securities were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering.

From February 2023 through April 2023, we issued an aggregate of the equivalent of 890,310 shares of our Series B Preferred Stock to investors in a Regulation Crowdfunding offering, at a price the equivalent of $6.76 as to the equivalent of 724,937 shares, with the remaining equivalent of 143,225 shares and equivalent of 22,148 shares being bonus and commission shares, respectively. The sales of the foregoing securities were issued pursuant to the exemption provided by Section 4(a)(6) of the Securities Act.

In March and April 2023, we issued an aggregate of the equivalent of 1,680,084 shares of our Series B Preferred Stock to investors in private placements, at a price the equivalent of $6.76 as to the equivalent of 1,527,349 shares, with the remaining equivalent of 152,735 shares being bonus shares. The sales of the securities were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering.

Series B-1 Preferred Stock

From April 2023 through September 2023, we issued an aggregate of the equivalent of 74,922 shares of our Series B-1 Preferred Stock to investors in a private placement, at prices ranging from the equivalent of $18.00 to $20.00 per share as to the equivalent of 64,070 shares, with the remaining equivalent of 10,852 shares being bonus shares. In connection with a portion of such private placement of our Series B-1 Preferred Stock, we also agreed to issue warrants, exercisable for a period of three years from their

issuance date, to purchase an aggregate of the equivalent of an aggregate of 8,890 shares of our common stock at an exercise price of the equivalent of $20.00 per share. The sales of the securities were deemed to be exempt from registration pursuant to Section 4(a)(2) of the Securities Act, including Regulation D and Rule 506 promulgated thereunder, as transactions by an issuer not involving a public offering.

Item 16. ***Exhibits and Financial Statement Schedules***

Exhibits

See the Exhibit Index immediately preceding the signature page hereto for a list of exhibits filed as part of this registration statement, which Exhibit Index is incorporated herein by reference.

Financial Statement Schedules

All financial statement schedules are omitted because the information called for is not required or is shown either in the financial statements or in the accompanying notes.

Item 17. ***Undertakings***

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement.

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

Provided, however, that paragraphs (a)(1)(i), (ii), and (iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act, that are incorporated by reference in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act to any purchaser, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the registrant under the Securities Act to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(c) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(d) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

EXHIBIT INDEX

Exhibit No.	
3.1	Amended and Restated Certificate of Incorporation of the registrant, as currently in effect.
3.2	Bylaws of the registrant, as currently in effect.
4.1	Reference is made to exhibits 3.1 through 3.2.
5.1	Opinion of Norton Rose Fulbright US LLP.
10.1	Intellectual Property Cross-License Agreement dated as of May 17, 2021, between SpinalCyte LLC and FibroBiologics, LLC.
10.2	Patent Assignment Agreement dated May 17, 2021, between SpinalCyte LLC and FibroBiologics, LLC.
10.3	Share Purchase Agreement dated as of November 12, 2021, by and among FibroBiologics, LLC GEM Global Yield LLC SCS and GEM Yield Bahamas Limited.
10.4	Registration Rights Agreement dated November 12, 2021, by and among FibroBiologics, LLC GEM Global Yield LLC SCS and GEM Yield Bahamas Limited.
10.5*	Bridge Note dated April 1, 2021, between SpinalCyte LLC and FibroBiologics, Inc.
10.6*	Sublease Agreement between United Fire & Casualty Company and FibroBiologics, Inc., effective October 5, 2022.
10.7*	License Agreement, dated November 30, 2021, between K2 Biolabs, LLC and FibroBiologics, LLC.
10.8*	Amendment No. 1, effective July 1, 2022, to the License Agreement between K2 Biolabs, LLC and FibroBiologics, Inc.
10.9*	Amendment No. 2, effective August 1, 2022, to the License Agreement between K2 Biolabs, LLC and FibroBiologics, Inc.
10.10*	Amendment No. 3, effective October 1, 2022, to the License Agreement between K2 Biolabs, LLC and FibroBiologics, Inc.
10.11*	Amendment No. 4, effective January 1, 2023, to the License Agreement between K2 Biolabs, LLC and FibroBiologics, Inc.
10.12	2022 Stock Plan
10.13*	Employment Agreement effective from July 20, 2021, between FibroBiologics, LLC and Hamid Khoja.
10.14*	Employment Agreement effective from May 31, 2022, between FibroBiologics, Inc. and Mark Andersen.
10.15*	Form of Indemnification Agreement between the Registrant and each of its Directors and Executive Officers.
10.16*	Energy Research Park Industrial Lease between University of Houston System, as Landlord, and FibroBiologics, Inc., as Tenant, effective August 1, 2023.
10.17	IP Transfer Agreement between SpinalCyte, LLC and FibroBiologics, LLC, dated as of May 17, 2021.
10.18	Amendment 1 to the Patent Assignment Agreement, effective August 2, 2022.
10.19	Agreement Regarding Right of First Negotiation dated January 20, 2023.
23.1	Consent of Norton Rose Fulbright US LLP (included in Exhibit 5.1).
23.2	Consent of WithumSmith+Brown PC.
23.3	Consent of Howard An, M.D.
24.1	Power of Attorney (included in the signature page to this registration statement).
107	Filing Fee Table

* To be filed by amendment.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Houston, State of Texas, on November 7, 2023.

FibroBiologics, Inc.

By: */s/ Pete O'Heeron*
Pete O'Heeron
Chief Executive Officer

POWER OF ATTORNEY

We, the undersigned officers and directors of FibroBiologics, Inc., hereby severally constitute and appoint Pete O'Heeron and Mark Andersen, and each of them singly (with full power to each of them to act alone), our true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution in each of them for us and in our name, place and stead, and in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement (or any other registration statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act of 1933), and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as full to all intents and purposes as we might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Pete O'Heeron Pete O'Heeron	Chairperson and Chief Executive Officer (Principal Executive Officer)	November 7, 2023
/s/ Mark Andersen Mark Andersen	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	November 7, 2023
/s/ Robert Hoffman Robert Hoffman	Director	November 7, 2023
/s/ Victoria Niklas Victoria Niklas, M.D.	Director	November 7, 2023
/s/ Richard Cilento Richard Cilento	Director	November 7, 2023
/s/ Stacy Coen Stacy Coen	Director	November 7, 2023
/s/ Matthew Link Matthew Link	Director	November 7, 2023

Delaware

The First State

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE RESTATED CERTIFICATE OF "FIBROBIOLOGICS, INC.", FILED IN THIS OFFICE ON THE THIRTY-FIRST DAY OF OCTOBER, A.D. 2023, AT 8:41 O`CLOCK A.M.

Jeffrey W. Bullock, Secretary of State

6471055 8100
SR# 20233851980

Authentication: 204483940
Date: 10-31-23

You may verify this certificate online at corp.delaware.gov/authver.shtml

State of Delaware
Secretary of State
Division of Corporations
Delivered 08:41 AM 10/31/2023
FILED 08:41 AM 10/31/2023
SR 20233851980 - File Number 6471055

AMENDED AND RESTATED CERTIFICATE OF INCORPORATION OF FIBROBIOLOGICS, INC.

(Pursuant to Sections 242 and 245 of the General Corporation Law of the State of Delaware)

FibroBiologics, Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "**DGCL**"),

DOES HEREBY CERTIFY:

1. That the name of this corporation is FibroBiologics, Inc., and that this corporation was originally formed under the laws of the State of Texas as a limited liability company on April 8, 2021 under the name FibroBiologics LLC and converted to a corporation pursuant to the DGCL on December 14, 2021 under the name Fibrobiologics, Inc. The original certificate of incorporation of this corporation was filed with the Secretary of State of the State of Delaware on December 14, 2021. The certificate of incorporation was first amended and restated on December 22, 2022 and further amended and restated on January 20, 2023, on April 12, 2023 and on October 30, 2023 (as so amended and restated, the "**Certificate of Incorporation**").

2. That the Board of Directors of this corporation duly adopted resolutions proposing to amend and restate the Certificate of Incorporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the certificate of incorporation of this corporation be amended and restated in its entirety to read as follows:

FIRST: The name of the corporation is FibroBiologics, Inc. (hereinafter called the "Corporation").

SECOND: The address of the registered office of the Corporation in the State of Delaware is 1209 Orange Street, in the City of Wilmington, County of New Castle, Delaware 19801. The name of the registered agent of the Corporation in the State of Delaware at such address is The Corporation Trust Company.

THIRD: The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized and incorporated under the General Corporation Law of the State of Delaware or any applicable successor act thereto, as the same may be amended from time to time (the "DGCL").

FOURTH: Effective upon the filing of this amended and restated certificate of incorporation (as amended from time to time, including the terms of any Preferred Stock Designation (as defined herein), this "Certificate of Incorporation"), (i) every four (4) issued and outstanding shares of Common Stock (as defined below) automatically and without any action on the part of the respective holders thereof, shall be changed, reclassified and combined into and shall constitute one (1) fully paid and non-assessable share of Common Stock, (ii) every four (4) issued and outstanding shares of Non-Voting Common Stock (as defined below) automatically and without any action on the part of the respective holders thereof, shall be changed, reclassified and combined into and shall constitute one (1) fully paid and non-assessable share of Non-Voting Common Stock, and (iii) every four (4) issued and outstanding shares of Preferred Stock (as defined below) automatically and without any action on the part of the respective holders thereof, shall be changed, reclassified and combined into and shall constitute one (1) fully paid and non-assessable

share of the same series of Preferred Stock (together, the "Reverse Stock Split"); provided, that if the Reverse Stock Split would result in any fractional shares, such fractional shares to which a holder would otherwise be entitled shall be rounded up to the nearest whole share. Each certificate that immediately prior to the effective time of the Reverse Stock Split represented shares of Common Stock, Non-Voting Common Stock or Preferred Stock, as applicable ("Old Certificate"), shall thereafter represent that number of shares of Common Stock, Non-Voting Common Stock or Preferred Stock, as applicable, into which the shares of Common Stock, Non-Voting Common Stock or Preferred Stock, as applicable, represented by the Old Certificate shall have been combined, subject to the treatment of fractional shares as described above. Notwithstanding the foregoing, the par value of each share of the Corporation's outstanding Common Stock, Non-Voting Common Stock and Preferred Stock will not be adjusted in connection with the Reverse Stock Split. All share amounts, dollar amounts and other provisions in this Certificate of Incorporation have been appropriately adjusted to reflect the Reverse Stock Split, and no further adjustments shall be made to the share amounts, dollar amounts, conversion prices and other provisions, except in the case of any stock splits, reverse splits, recapitalization and the like occurring after the effective time of the Reverse Stock Split.

Immediately after the effective time of the Reverse Stock Split, the total number of shares of all classes of capital stock that the Corporation is authorized to issue is 150,000,000 shares, consisting of (i) 100,000,000 shares of voting common stock, par value $0.00001 per share ("Common Stock"), (ii) 30,000,000 shares of non-voting common stock, par value $0.00001 per share ("Non-Voting Common Stock") and (iii) 20,000,000 shares of preferred stock, par value $0.00001 per share ("Preferred Stock"), of which 8,750,000 shares are designated as Series A Preferred Stock ("Series A Preferred Stock"), 5,000,000 shares are designated as Series B Preferred Stock ("Series B Preferred Stock"), 5,000,000 shares are designated as Series B-1 Preferred Stock ("Series B-1 Preferred Stock," and together with the Series B Preferred Stock, the "Convertible Preferred Stock") and 2,500 shares are designated as Series C Preferred Stock ("Series C Preferred Stock").

Subject to the rights of the holders of any series of Preferred Stock, the number of authorized shares of Common Stock, Non-Voting Common Stock and Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority in voting power of the capital stock of the Corporation entitled to vote thereon irrespective of the provisions of Section 242(b)(2) of the DGCL, and no vote of the holders of Common Stock or Preferred Stock voting separately as a class shall be required therefor, except as required by applicable law.

A. Common Stock and Non-Voting Common Stock. The powers, preferences and relative participating, optional or other special rights, and the qualifications, limitations and restrictions of the Common Stock and Non-Voting Common Stock are as follows:

1. Ranking. The voting, dividend and liquidation rights of the holders of Common Stock and Non-Voting Common Stock are subject to and qualified by the rights of the holders of Preferred Stock of any series as may be designated by the Board of Directors of the Corporation (the "Board") upon any issuance of Preferred Stock of any series.

2. Voting. Subject to the rights of the holders of Preferred Stock and except as otherwise provided by applicable law, the holders of outstanding shares of Common Stock shall have the right to vote for the election and removal of directors and for all other purposes. Notwithstanding any other provision of this Certificate of Incorporation to the contrary, the holders of Common Stock shall not be entitled to vote on any amendment to this Certificate of Incorporation (including any Preferred Stock Designation) that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together as a class with the holders of one or more other such series, to vote thereon pursuant to this Certificate of Incorporation (including any Preferred Stock Designation) or the DGCL. The holders of Non-Voting Common Stock shall have no right to vote on any matter to be voted on by the stockholders of the Corporation or to receive any notice of meetings of stockholders, except as required by applicable law. On all matters required by applicable law to be voted on by holders of Non-Voting Common Stock, if any, no vote of the holders of Non-Voting Common Stock voting separately as a class shall be required therefor, except as required by applicable law.

3. Dividends. Subject to the rights of the holders of Preferred Stock, holders of shares of Common Stock and Non-Voting Common Stock shall be entitled to receive such dividends and

distributions and other distributions in cash, stock or property of the Corporation when, as and if declared thereon by the Board from time to time out of assets or funds of the Corporation legally available therefor.

4. Liquidation. Subject to the rights of the holders of Preferred Stock, shares of Common Stock and Non-Voting Common Stock shall be entitled to receive the assets and funds of the Corporation available for distribution in the event of any liquidation, dissolution or winding up of the affairs of the Corporation, whether voluntary or involuntary. A liquidation, dissolution or winding up of the affairs of the Corporation, as such terms are used in this Section Fourth A.4, shall not be deemed to be occasioned by or to include any consolidation or merger of the Corporation with or into any other person or a sale, lease, exchange or conveyance of all or a part of its assets.

5. Conversion. Upon the closing of an IPO as described in Section Fourth C.5, each share of Non-Voting Common Stock shall automatically convert without the payment of additional consideration by or to the holder thereof, into one fully paid and non-assessable share of Common Stock.

B. Preferred Stock. Additional shares of Preferred Stock may be issued from time to time in one or more series. The Board is hereby authorized to provide by resolution or resolutions from time to time for the issuance, out of the unissued shares of Preferred Stock, of one or more series of Preferred Stock, without stockholder approval, by filing a certificate pursuant to the applicable law of the State of Delaware (the "Preferred Stock Designation"), setting forth such resolution and, with respect to each such series, establishing the number of shares to be included in such series, and fixing the voting powers, full or limited, or no voting power of the shares of such series, and the designation, preferences and relative, participating, optional or other special rights, if any, of the shares of each such series and any qualifications, limitations or restrictions thereof. The powers, designation, preferences and relative, participating, optional and other special rights of each series of Preferred Stock, and the qualifications, limitations and restrictions thereof, if any, may differ from those of any and all other series at any time outstanding. The authority of the Board with respect to each series of Preferred Stock shall include, but not be limited to, the determination of the following:

1. the designation of the series, which may be by distinguishing number, letter or title,

2. the number of shares of the series, which number the Board may thereafter (except where otherwise provided in the Preferred Stock Designation) increase or decrease (but not below the number of shares thereof then outstanding),

3. the amounts or rates at which dividends will be payable on, and the preferences, if any, of shares of the series in respect of dividends, and whether such dividends, if any, shall be cumulative or noncumulative,

4. the dates on which dividends, if any, shall be payable,

5. the redemption rights and price or prices, if any, for shares of the series,

6. the terms and amount of any sinking fund, if any, provided for the purchase or redemption of shares of the series,

7. the amounts payable on, and the preferences, if any, of shares of the series in the event of any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Corporation,

8. whether the shares of the series shall be convertible into or exchangeable for, shares of any other class or series, or any other security, of the Corporation or any other corporation, and, if so, the specification of such other class or series or such other security, the conversion or exchange price or prices or rate or rates, any adjustments thereof, the date or dates at which such shares shall be convertible or exchangeable and all other terms and conditions upon which such conversion or exchange may be made,

9. restrictions on the issuance of shares of the same series or any other class or series,

10. the voting rights, if any, of the holders of shares of the series generally or upon specified events, and

11. any other powers, preferences and relative, participating, optional or other special rights of each series of Preferred Stock, and any qualifications, limitations or restrictions of such shares,

all as may be determined from time to time by the Board and stated in the resolution or resolutions providing for the issuance of such Preferred Stock.

Without limiting the generality of the foregoing, the resolutions providing for issuance of any series of Preferred Stock may provide that such series shall be superior or rank equally or be junior to any other series of Preferred Stock to the extent permitted by law.

C. Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock. The preferences, limitations, and rights of the Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock are as follows:

1. Ranking. The Series A Preferred Stock shall rank *pari passu* to the Series B Preferred Stock and the Series B-1 Preferred Stock, and senior to the Series C Preferred Stock, Common Stock and Non-Voting Common Stock with respect to the payment of dividends and distributions and upon liquidation, dissolution, winding-up or otherwise. The Series B Preferred Stock shall rank *pari passu* to the Series A Preferred Stock and the Series B-1 Preferred Stock and senior to the Series C Preferred Stock, Common Stock and Non-Voting Common Stock with respect to the payment of dividends and distributions and upon liquidation, dissolution, winding-up or otherwise. The Series B-1 Preferred Stock shall rank *pari passu* to the Series A Preferred Stock and the Series B Preferred Stock and senior to the Series C Preferred Stock, Common Stock and Non-Voting Common Stock with respect to the payment of dividends and distributions and upon liquidation, dissolution, winding-up or otherwise.

2. Voting. Subject to the rights of the holders of other classes or series of Preferred Stock and except as otherwise provided by applicable law, the holders of Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock shall have the right to vote on any matter to be voted on by the stockholders of the Corporation, in each case, voting together as a single class with each share representing one vote.

3. Liquidation Preference.

(a). Subject to the rights of the holders of other classes or series of Preferred Stock, in the event of any liquidation, dissolution or winding up of the Corporation, either voluntary or involuntary, the holders of the Series A Preferred Stock shall be entitled to receive, prior and in preference to any distribution in such liquidation, dissolution or winding up of any of the assets of the Corporation to the holders of Series C Preferred Stock, the holders of Common Stock and the holders of Non-Voting Common Stock by reason of their ownership thereof, an amount per share equal to the quotient of (i) $35,000,000 and (ii) the number of outstanding shares of the Series A Preferred Stock, for each outstanding share of Series A Preferred Stock. Subject to the rights of the holders of other classes or series of Preferred Stock, if upon the occurrence of any such liquidation, dissolution or winding up of the Corporation, the assets and funds of the Corporation thus distributed among the holders of the Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock shall be insufficient to permit the payment to such holders of the full amount payable under Section Fourth C.3(a), C.3(b) and C.3(c), as applicable, then the entire assets and funds of the Corporation legally available for distribution shall be distributed to the holders of the Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock on a pro rata basis up to the amount of their applicable Liquidation Amount.

(b). Subject to the rights of the holders of other classes or series of Preferred Stock, in the event of any liquidation, dissolution or winding up of the Corporation, either voluntary or involuntary, the holders of the Series B Preferred Stock shall be entitled to receive, prior and in preference to any distribution in such liquidation, dissolution or winding up of any of the assets of the Corporation to the holders of Series C Preferred Stock, the holders of Common Stock and the holders of Non-Voting Common Stock by reason of their ownership thereof, an amount per share equal to one times the Series B Issue Price, plus any dividends declared but unpaid thereon. The "Series B Issue Price" shall mean, with respect to the Series B Preferred Stock, $6.76 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the applicable Preferred Stock. Subject to the rights of the holders of other classes or series of Preferred Stock, if upon the occurrence of any such liquidation, dissolution or winding up of the Corporation, the assets and funds of the Corporation thus distributed among the holders of the Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock shall be insufficient to permit the payment to such holders of the full amount payable under Section Fourth C.3(a), C.3(b) and C.3(c), as applicable, then the entire assets and funds of the Corporation legally available for distribution shall be distributed to the holders of the Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock on a pro rata basis up to the amount of their applicable Liquidation Amount.

(c). Subject to the rights of the holders of other classes or series of Preferred Stock, in the event of any liquidation, dissolution or winding up of the Corporation, either voluntary or involuntary, the holders of the Series B-1 Preferred Stock shall be entitled to receive, prior and in preference to any distribution in such liquidation, dissolution or winding up of any of the assets of the Corporation to the holders of Series C Preferred Stock, the holders of Common Stock and the holders of Non-Voting Common Stock by reason of their ownership thereof, an amount per share equal to one times the Series B-1 Issue Price, plus any dividends declared but unpaid thereon. The "Series B-1 Issue Price" shall mean, with respect to the Series B-1 Preferred Stock, $20.00 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the applicable Preferred Stock. Subject to the rights of the holders of other classes or series of Preferred Stock, if upon the occurrence of any such liquidation, dissolution or winding up of the Corporation, the assets and funds of the Corporation thus distributed among the holders of the Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock shall be insufficient to permit the payment to such holders of the full amount payable under Section Fourth C.3(a), C.3(b) and C.3(c), as applicable, then the entire assets and funds of the Corporation legally available for distribution shall be distributed to the holders of the Series A Preferred Stock, Series B Preferred Stock and Series B-1 Preferred Stock on a pro rata basis up to the amount of their applicable Liquidation Amount.

(d). In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, after the payment in full of the amounts called for by Section Fourth C.3(a), C.3(b), C.3(c) and D.5, the remaining assets of the Corporation available for distribution to the Corporation's stockholders or, in the case of a Deemed Liquidation Event, the consideration not payable to the holders of shares of applicable Preferred Stock pursuant to Section Fourth C.6 shall be distributed among the holders of the shares of Series B Preferred Stock, Series B-1 Preferred Stock, Series C Preferred Stock, Common Stock and Non-Voting Common Stock, pro rata based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to Common Stock pursuant to the terms of this Certificate of Incorporation immediately prior to such liquidation, dissolution or winding up of the Corporation. The aggregate amount which a holder of a share of applicable Preferred Stock is entitled to receive under Section Fourth C.3(a), C.3(b), C.3(c) and C.3(d) is hereinafter referred to as the "Liquidation Amount."

4. Conversion and Termination.

(a). Each share of Series A Preferred Stock shall automatically terminate and be cancelled with no consideration upon the closing of an IPO or Deemed Liquidation Event.

(b). Upon the closing of an IPO as described in Section Fourth C.5, each share of Series B Preferred Stock shall automatically convert without the payment of additional consideration

by or to the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Series B Issue Price by the Series B Conversion Price (as defined below) in effect at the time of conversion. The "Series B Conversion Price" applicable to the Series B Preferred Stock shall initially be equal to the Series B Issue Price. Such initial Series B Conversion Price, and the rate at which shares of Series B Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

(c). Upon the closing of an IPO as described in Section Fourth C.5, each share of Series B-1 Preferred Stock shall automatically convert without the payment of additional consideration by or to the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Series B-1 Issue Price by the Series B-1 Conversion Price (as defined below) in effect at the time of conversion. The "Series B-1 Conversion Price" applicable to the Series B-1 Preferred Stock shall initially be equal to the Series B-1 Issue Price. Such initial Series B-1 Conversion Price, and the rate at which shares of Series B-1 Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

(d). Termination of Conversion Rights. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the conversion rights described in this Section Fourth C.4 shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of applicable Preferred Stock; provided that the foregoing termination of conversion rights shall not affect the amount(s) otherwise paid or payable in accordance with Section Fourth C.6 to holders of applicable Preferred Stock pursuant to such liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event.

(e). Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Convertible Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the number of shares of Common Stock to be issued upon conversion of the Convertible Preferred Stock shall be rounded up to the nearest whole share.

(f). Conversion.

i. Reservation of Shares. The Corporation shall at all times when the Convertible Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Convertible Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Convertible Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Convertible Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to this Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Series B Conversion Price and/or the Series B-1 Conversion Price below the then par value of the shares of Common Stock issuable upon conversion of the Series B Preferred Stock and/or the Series B-1 Preferred Stock, as applicable, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and non-assessable shares of Common Stock at such adjusted Series B Conversion Price and/or adjusted Series B-1 Conversion Price, as applicable.

ii. Effect of Conversion. All shares of Convertible Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Mandatory Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor and to receive payment of any dividends declared but unpaid thereon. Any shares of Convertible Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

iii. No Further Adjustment. Upon any such conversion, no adjustment to the Series B Conversion Price and/or the Series B-1 Conversion shall be made for any declared but unpaid dividends on the Series B Preferred Stock and/or the Series B-1 Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

iv. Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Convertible Preferred Stock pursuant to this Section Fourth C.4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Convertible Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

(g). Adjustment for Stock Splits and Combinations.

i. If the Corporation shall at any time or from time to time after the effective date of the Reverse Stock Split (the "Reverse Stock Split Date") effect a subdivision of the outstanding Common Stock, the Series B Conversion Price in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Reverse Stock Split Date combine the outstanding shares of Common Stock, the Series B Conversion Price in effect immediately before the combination shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this Section Fourth C.4(g)(i) shall become effective at the close of business on the date the subdivision or combination becomes effective.

ii. If the Corporation shall at any time or from time to time after the Reverse Stock Split Date effect a subdivision of the outstanding Common Stock, the Series B-1 Conversion Price in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Reverse Stock Split Date combine the outstanding shares of Common Stock, the Series B-1 Conversion Price in effect immediately before the combination shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this Section Fourth C.4(g)(ii) shall become effective at the close of business on the date the subdivision or combination becomes effective.

(h). Adjustment for Certain Dividends and Distributions.

i. In the event the Corporation at any time or from time to time after the Reverse Stock Split Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the Series B Conversion Price in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Series B Conversion Price then in effect by a fraction: (x) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and (y) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution. Notwithstanding the foregoing, (x) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Series B Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Series B Conversion Price shall be adjusted pursuant to this Section Fourth C.4(h)(i) as of the time of actual payment of such dividends or distributions and (y) no such adjustment shall be made if the holders of Series B

Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Series B Preferred Stock had been converted into Common Stock on the date of such event.

ii. In the event the Corporation at any time or from time to time after the Reverse Stock Split Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the Series B-1 Conversion Price in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Series B-1 Conversion Price then in effect by a fraction: (x) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date and (y) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution. Notwithstanding the foregoing, (x) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Series B-1 Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Series B-1 Conversion Price shall be adjusted pursuant to this Section Fourth C.4(h)(ii) as of the time of actual payment of such dividends or distributions and (y) no such adjustment shall be made if the holders of Series B-1 Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Series B-1 Preferred Stock had been converted into Common Stock on the date of such event.

(i). Adjustments for Other Dividends and Distributions.

i. In the event the Corporation at any time or from time to time after the Reverse Stock Split Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property, then and in each such event the holders of Series B Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Series B Preferred Stock had been converted into Common Stock on the date of such event.

ii. In the event the Corporation at any time or from time to time after the Reverse Stock Split Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property, then and in each such event the holders of Series B-1 Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Series B-1 Preferred Stock had been converted into Common Stock on the date of such event.

(j). Adjustment for Merger or Reorganization, etc.

i. Subject to the provisions of Section Fourth C.6, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Series B Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Section Fourth C.4(g), (h) or (i)), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Series B Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of Series B Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board) shall be made in the application of the

provisions in this Section Fourth C.4 with respect to the rights and interests thereafter of the holders of the Series B Preferred Stock, to the end that the provisions set forth in this Section Fourth C.4 (including provisions with respect to changes in and other adjustments of the Series B Conversion Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Series B Preferred Stock.

ii. Subject to the provisions of Section Fourth C.6, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Series B-1 Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Section Fourth C.4(g), (h) or (i)), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Series B-1 Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of Series B-1 Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board) shall be made in the application of the provisions in this Section Fourth C.4 with respect to the rights and interests thereafter of the holders of the Series B-1 Preferred Stock, to the end that the provisions set forth in this Section Fourth C.4 (including provisions with respect to changes in and other adjustments of the Series B-1 Conversion Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Series B-1 Preferred Stock.

(k). Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Series B Conversion Price and/or Series B-1 Conversion Price pursuant to this Section Fourth C.4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten calendar days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of Series B Preferred Stock and/or Series B-1 Preferred Stock, as applicable, a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which the Series B Preferred Stock and/or Series B-1 Preferred Stock, as applicable, is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of Series B Preferred Stock or Series B-1 Preferred Stock (but in any event not later than ten calendar days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Series B Conversion Price or Series B-1 Conversion Price, as applicable, then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of Series B Preferred Stock or Series B-1 Preferred Stock, as applicable.

(l). Notice of Record Date. In the event:

i. the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Series B Preferred Stock and/or the Series B-1 Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or

ii. of any capital reorganization of the Corporation, any reclassification of the Common Stock, or any Deemed Liquidation Event; or

iii. of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation,

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Series B Preferred Stock and/or the Series B-1 Preferred Stock, as applicable, a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Series B Preferred Stock and/or the Series B-1 Preferred Stock, as

applicable) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the applicable Preferred Stock and the Common Stock. Such notice shall be sent at least ten calendar days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

(a). Trigger Events. Upon the closing of an IPO (the time of such closing is referred to herein as the "Mandatory Conversion Time"), (i) all outstanding shares of Series B Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Section Fourth C.4(b) and such shares may not be reissued by the Corporation, (ii) all outstanding shares of Series B-1 Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Section Fourth C.4(c) and such shares may not be reissued by the Corporation, and (iii) each outstanding share of Non-Voting Common Stock shall automatically be converted into one share of Common Stock and such shares may not be reissued by the Corporation.

(b). Procedural Requirements. All holders of record of shares of Series B Preferred Stock and Series B-1 Preferred Stock shall be sent written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of Series B Preferred Stock and Series B-1 Preferred Stock pursuant to this Section Fourth C.5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of Series B Preferred Stock in certificated form and each holder of shares of Series B-1 Preferred Stock in certificated form shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Series B Preferred Stock and the Series B-1 Preferred Stock converted pursuant to Section Fourth C.5(a), including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the Mandatory Conversion Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Section Fourth C.5(b). As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Series B Preferred Stock and Series B-1 Preferred Stock, the Corporation shall (i) issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates or electronic book entry form for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof and (ii) pay any declared but unpaid dividends on the shares of Series B Preferred Stock and Series B-1 Preferred Stock converted. Such converted Series B Preferred Stock and converted Series B-1 Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Series B Preferred Stock and Series B-1 Preferred Stock accordingly.

6. Deemed Liquidation Events.

(a). Definition. Each of the following events shall be considered a "Deemed Liquidation Event" unless the holders of at least a majority of the outstanding shares of Series A Preferred Stock elect otherwise by written notice sent to the Corporation at least five calendar days prior to the effective date of any such event:

i. a merger or consolidation in which (x) the Corporation is a constituent party or (y) a subsidiary of the Corporation is a constituent party and the Corporation issues shares

of its capital stock pursuant to such merger or consolidation, except, in each case, any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, at least a majority, by voting power, of the capital stock of (A) the surviving or resulting corporation or (B) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or

ii. (x) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole, or (y) the sale or disposition (whether by merger, consolidation or otherwise, and whether in a single transaction or a series of related transactions) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Corporation.

(b). Effecting a Deemed Liquidation Event. The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Section Fourth C.6(a)(i) unless the agreement or plan of merger or consolidation for such transaction (the "Merger Agreement") provides that the consideration payable to the stockholders of the Corporation in such Deemed Liquidation Event shall be allocated to the holders of capital stock of the Corporation in accordance with Section Fourth C.3.

(c). Amount Deemed Paid or Distributed. The amount deemed paid or distributed to the holders of capital stock of the Corporation upon any such merger, consolidation, sale, transfer, exclusive license, or other disposition shall be the cash or the value of the property, rights or securities to be paid or distributed to such holders pursuant to such Deemed Liquidation Event. The value of such property, rights or securities shall be determined in good faith by the Board.

(d). Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event pursuant to Section Fourth C.6(a)(i), if any portion of the consideration payable to the stockholders of the Corporation is payable only upon satisfaction of contingencies (the "Additional Consideration"), the Merger Agreement shall provide that (x) the portion of such consideration that is not Additional Consideration (such portion, the "Upfront Consideration") shall be allocated among the holders of capital stock of the Corporation in accordance with Section Fourth C.3 as if the Upfront Consideration were the only consideration payable in connection with such Deemed Liquidation Event and (y) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Section Fourth C.3 after taking into account the previous payment of the Upfront Consideration as part of the same transaction. For the purposes of this Section Fourth C.6(d), consideration placed into escrow or retained as a holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

D. Series C Preferred Stock. The preferences, limitations, and rights of the Series C Preferred are as follows:

1. Ranking. The Series C Preferred Stock shall rank senior to the Common Stock and Non-Voting Common Stock and junior to the Series A Preferred Stock, the Series B Preferred Stock and the Series B-1 Preferred Stock upon liquidation, dissolution, winding-up or otherwise.

2. Voting Prior to Closing of an IPO. Prior to the closing of an IPO as described in Section Fourth C.5, the holders of Series C Preferred Stock shall have no right to vote on any matter to be voted on by the stockholders of the Corporation or to receive any notice of meetings of stockholders (except as required by applicable law). Prior to the closing of an IPO as described in Section Fourth C.5, on any matter required by applicable law to be voted on by holders of Series C Preferred Stock, if any, each share of Series C Preferred Stock shall be entitled to one vote and no vote of the holders of Series C Preferred

Stock voting separately as a class shall be required in connection with such vote (except as required by applicable law).

3. Voting Upon Closing of an IPO. Upon, and after, the closing of an IPO as described in Section Fourth C.5, each share of Series C Preferred Stock shall be entitled to thirteen thousand (13,000) votes. Upon, and after, the closing of an IPO as described in Section Fourth C.5, subject to the rights of the holders of other classes or series of Preferred Stock and except as otherwise provided by applicable law, the holders of Series C Preferred Stock shall have the right to vote on any matter to be voted on by the stockholders of the Corporation, in each case, voting together with the holders of Common Stock as a single class. Upon, and after the closing of an IPO, each holder of shares of Series C Preferred Stock shall be entitled to receive the same prior notice of any meeting of stockholders as provided to the holders of Common Stock in accordance with the Bylaws of the Corporation (the "Bylaws"), as well as prior notice of all stockholder actions to be taken by legally available means in lieu of a meeting, and shall vote with the holders of the Common Stock upon any matter submitted to a vote of stockholders, except those matters, if any, required by law to be submitted to a class vote of the holders of Series C Preferred Stock.

4. Dividends. Holders of Series C Preferred Stock shall not be entitled to any dividend, whether payable in cash, stock or property of the Corporation.

5. Liquidation. Subject to the superior rights of other classes or series of Preferred Stock, in the event of any liquidation, dissolution or winding up of the Corporation, either voluntary or involuntary, the holders of the Series C Preferred Stock shall be entitled to receive, prior and in preference to any distribution in such liquidation, dissolution or winding up of any of the assets of the Corporation to the holders of Common Stock and the holders of Non-Voting Common Stock by reason of their ownership thereof, an amount per share equal to one times the Series C Issue Price. The "Series C Issue Price" shall mean, with respect to the Series C Preferred Stock, $18.00 per share, subject to appropriate adjustment in the event of any stock split, combination or other similar recapitalization with respect to the applicable Preferred Stock.

6. Optional Conversion. The Series C Preferred Stock shall be convertible at any time as follows:

(a). At the option of the holder, a share of Series C Preferred Stock may be converted into one share of Common Stock; and

(b). Upon the election of the holders of a majority of the then outstanding shares of Series C Preferred Stock, all outstanding shares of Series C Preferred Stock may be converted into an equal number of shares of Common Stock.

7. Mandatory Conversion Upon Transfer. Upon, and after, the closing of an IPO as described in Section Fourth C.5, each share of Series C Preferred Stock shall automatically convert, without the payment of additional consideration by or to the holder thereof, into one fully paid and non-assessable share of Common Stock, upon any transfer of any share of Series C Preferred Stock, whether or not for value.

8. Effect of Conversion. Any shares of Series C Preferred Stock which are converted as provided in Section Fourth D.6 and Section Fourth D.7, shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the time of such conversion, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor as provided herein. Any shares of Series C Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Series C Preferred Stock accordingly.

9. Adjustment for Stock Splits and Combinations. For as long as the Series C Preferred Stock remain outstanding, the aggregate number of shares of Series C Preferred Stock then outstanding, shall be proportionately adjusted for any increase or decrease in the number of issued shares of

Common Stock resulting from a subdivision or combination of the Common Stock or other similar recapitalization, in each case effected without the receipt of consideration by the Corporation.

10. Reservation of Shares. The Corporation shall at all times when the Series C Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Series C Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Series C Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Series C Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to the Certificate of Incorporation.

FIFTH: This Article FIFTH is inserted for the management of the business and for the conduct of the affairs of the Corporation.

A. General Powers. The business and affairs of the Corporation shall be managed by or under the direction of the Board, except as otherwise provided by law.

B. Number of Directors; Election of Directors. Subject to the rights of holders of any series of Preferred Stock to elect directors, the number of directors of the Corporation shall be fixed from time to time solely by resolution of the majority of the Whole Board. For purposes of this Certificate of Incorporation, the term "Whole Board" will mean the total number of authorized directors, whether or not there exist any vacancies in previously authorized directorships. No decrease in the number of directors constituting the Board shall shorten the term of any incumbent director.

C. Classes of Directors. Upon completion of an IPO:

1. subject to the rights of holders of any series of Preferred Stock to elect directors, the Board shall be divided into three classes, designated Class I, Class II and Class III;

2. each class shall consist, as nearly as may be possible, of one third of the total number of directors constituting the entire Board; and

3. the Board is authorized to assign members of the Board already in office to Class I, Class II or Class III at the time such classification becomes effective.

"IPO" means the Corporation's first underwritten public offering of its Common Stock under the Securities Act of 1933, as amended (the "Securities Act"), or a direct listing of its shares on a securities exchange.

D. Terms of Office.

1. Prior to an IPO: subject to the rights of holders of any series of Preferred Stock to elect directors, each director shall serve for a term ending on the date of the next annual meeting of stockholders after the director is elected or appointed subject to his or her earlier death, disqualification, resignation or removal.

2. Upon Completion of an IPO: Subject to the rights of holders of any series of Preferred Stock to elect directors, each director shall serve for a term ending on the date of the third annual meeting of stockholders following the annual meeting of stockholders at which such director was elected; provided that each director initially assigned to Class I shall serve for a term expiring at the Corporation's first annual meeting of stockholders held after the completion of the IPO; each director initially assigned to Class II shall serve for a term expiring at the Corporation's second annual meeting of stockholders held after the completion of the IPO; and each director initially assigned to Class III shall serve for a term expiring at the Corporation's third annual meeting of

stockholders held after the completion of the IPO; provided further, that the term of each director shall continue until the election and qualification of his or her successor and be subject to his or her earlier death, disqualification, resignation or removal.

E. Vacancies. Subject to the rights of holders of any series of Preferred Stock, any newly created directorship that results from an increase in the number of directors or any vacancy on the Board that results from the death, disability, resignation, disqualification or removal of any director or from any other cause shall be filled solely by the affirmative vote of a majority of the total number of directors then in office, even if less than a quorum, or by a sole remaining director and shall not be filled by the stockholders. Any director elected to fill a vacancy not resulting from an increase in the number of directors shall hold office for the remaining term of his or her predecessor.

F. Removal. Any director or the entire Board may be removed from office at any time, but only for cause and then only by the affirmative vote of the holders of at least $66^{2/3}\%$ in voting power of the stock of the Corporation entitled to vote thereon.

G. Committees. Pursuant to the Bylaws, the Board may establish one or more committees to which may be delegated any or all of the powers and duties of the Board to the full extent permitted by law.

H. Stockholder Nominations and Introduction of Business. Advance notice of stockholder nominations for election of directors and other business to be brought by stockholders before a meeting of stockholders shall be given in the manner provided by the Bylaws.

SIXTH: Unless and except to the extent that the Bylaws shall so require, the election of directors of the Corporation need not be by written ballot.

SEVENTH: To the fullest extent permitted by the DGCL as it presently exists or may hereafter be amended, no director or officer of the Corporation shall be personally liable to the Corporation or to its stockholders for monetary damages for any breach of fiduciary duty as a director or an officer. No amendment to, modification of, or repeal of this Article SEVENTH shall apply to or have any effect on the liability or alleged liability of any director or officer of the Corporation for or with respect to any acts or omissions of such director or officer occurring prior to such amendment. If the DGCL is hereafter amended to authorize corporate action further limiting or eliminating the personal liability of directors or officers, then the liability of the directors or officers of the Corporation shall be limited or eliminated to the fullest extent permitted by the DGCL, as so amended from time to time.

EIGHTH: The Corporation shall indemnify, and advance expenses to, to the fullest extent permitted by law, any person who was or is a party to or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative by reason of the fact that the person is or was a director, officer, employee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise.

NINTH: Subject to the terms of any series of Preferred Stock, upon completion of an IPO, any action required or permitted to be taken by the stockholders of the Corporation must be effected at an annual or special meeting of the stockholders called in accordance with the Bylaws and this Certificate of Incorporation and may not be effected by written consent in lieu of a meeting.

TENTH: Special meetings of stockholders for any purpose or purposes may be called at any time by the majority of the Whole Board, the Chairman of the Board or the Chief Executive Officer of the Corporation, and may not be called by another other person or persons. Business transacted at any special meeting of stockholders shall be limited to matters relating to the purpose or purposes stated in the notice of meeting.

ELEVENTH: If any provision or provisions of this Certificate of Incorporation shall be held to be invalid, illegal or unenforceable as applied to any circumstance for any reason whatsoever: (i) the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Certificate of Incorporation (including, without limitation, each portion of any paragraph of this Certificate of Incorporation

containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and (ii) to the fullest extent possible, the provisions of this Certificate of Incorporation (including, without limitation, each such portion of any paragraph of this Certificate of Incorporation containing any such provision held to be invalid, illegal or unenforceable) shall be construed so as to permit the Corporation to protect its directors, officers, employees and agents from personal liability in respect of their good faith service or for the benefit of the Corporation to the fullest extent permitted by law.

The Corporation reserves the right at any time from time to time to amend, alter, change or repeal any provision contained in this Certificate of Incorporation, and any other provisions authorized by the DGCL may be added or inserted, in the manner now or hereafter prescribed by law; and all rights, preferences and privileges of whatsoever nature conferred upon stockholders, directors or any other persons whomsoever by and pursuant to this Certificate of Incorporation in its present form or as hereafter amended are granted subject to the right reserved in this Article ELEVENTH. Notwithstanding any other provision of this Certificate of Incorporation or any provision of law that might otherwise permit a lesser vote or no vote, but in addition to any affirmative vote of the holders of any series of Preferred Stock required by law, by this Certificate of Incorporation or by any Preferred Stock Designation, the affirmative vote of the holders of a majority in voting power of the stock of the Corporation entitled to vote thereon shall be required to amend, alter, change or repeal any provision of this Certificate of Incorporation, or to adopt any new provision of this Certificate of Incorporation; provided, however, that the affirmative vote of the holders of at least $66^{2/3}\%$ in voting power of the stock of the Corporation entitled to vote thereon shall be required to amend, alter, change or repeal, or adopt any provision inconsistent with, any of Article FIFTH, Article SEVENTH, Article EIGHTH, Article NINTH, Article TENTH, Article TWELFTH, Article THIRTEENTH, and this sentence of this Certificate of Incorporation, or in each case, the definition of any capitalized terms used therein or any successor provision (including, without limitation, any such article or section as renumbered as a result of any amendment, alteration, change, repeal or adoption of any other provision of this Certificate of Incorporation). Any amendment, repeal or modification of any of Article SEVENTH, Article EIGHTH, and this sentence shall not adversely affect any right or protection of any person existing thereunder with respect to any act or omission occurring prior to such repeal or modification.

TWELFTH: In furtherance and not in limitation of the powers conferred upon it by law, the Board is expressly authorized and empowered to adopt, amend and repeal the Bylaws by the affirmative vote of a majority of the Whole Board. Notwithstanding any other provision of this Certificate of Incorporation or any provision of law that might otherwise permit a lesser vote or no vote, but in addition to any affirmative vote of the holders of any series of Preferred Stock required by law, by this Certificate of Incorporation or by any Preferred Stock Designation, the Bylaws may also be amended, altered or repealed and new Bylaws may be adopted by the affirmative vote of the holders of at least $66^{2/3}\%$ in voting power of the stock of the Corporation entitled to vote thereon.

THIRTEENTH:

A. Forum Selection. Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware) shall, to the fullest extent permitted by law, be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (iii) any action arising pursuant to any provision of the DGCL or this Certificate of Incorporation or the Bylaws (as either may be amended from time to time), or (iv) any action asserting a claim governed by the internal affairs doctrine. Unless the Corporation consents in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause or causes of action arising under the Securities Act, including all causes of action asserted against any defendant to such complaint. Nothing in this Article THIRTEENTH shall be deemed to preclude a stockholder of the Corporation who asserts claims under the Securities Exchange Act of 1934, as amended (the "Exchange Act") from bringing such claims in federal court, to the extent that the Exchange Act confers exclusive federal jurisdiction over such claims, subject to applicable law. Any person or entity purchasing or otherwise acquiring or holding any interest in shares of capital stock of the Corporation shall be deemed to have notice of and consented to the provisions of this Article THIRTEENTH.

B. Personal Jurisdiction. If any action the subject matter of which is within the scope of Section Thirteenth A immediately above is filed in a court other than the applicable court specified in Section Thirteenth A immediately above (a "Foreign Action") in the name of any stockholder, such stockholder shall be deemed to have consented to (i) the personal jurisdiction of the applicable state and/or federal courts specified in Section Thirteenth A immediately above in connection with any action brought in any such court to enforce Section Thirteenth A immediately above (an "FSC Enforcement Action") and (ii) having service of process made upon such stockholder in any such FSC Enforcement Action by service upon such stockholder's counsel in the Foreign Action as agent for such stockholder.

[Remainder of Page Intentionally Left Blank]

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the DGCL.

4. That this Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this corporation's Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the DGCL.

IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 31st day of October, 2023.

By: _____
Name: Mark Andersen
Title: Chief Financial Officer

BYLAWS OF FIBROBIOLOGICS, INC.

ARTICLE I
OFFICES

Section 1.01 **Registered Office**. The registered office of Fibrobiologics, Inc. (the "Corporation") will be fixed in the Certificate of Incorporation of the Corporation (the "Certificate of Incorporation").

Section 1.02 **Other Offices**. The Corporation may have other offices, both within and without the State of Delaware, as the board of directors of the Corporation (the "Board of Directors") from time to time shall determine or the business of the Corporation may require.

ARTICLE II
MEETINGS OF THE STOCKHOLDERS

Section 2.01 **Place of Meetings**. All meetings of the stockholders shall be held at such place, if any, either within or without the State of Delaware, or by means of remote communication, as shall be designated from time to time by resolution of the Board of Directors and stated in the notice of meeting.

Section 2.02 **Annual Meeting**. The annual meeting of the stockholders for the election of directors and for the transaction of such other business as may properly come before the meeting in accordance with these Bylaws shall be held at such date, time and place, if any, as shall be determined by the Board of Directors and stated in the notice of the meeting.

Section 2.03 **Special Meetings**.

(a) **Purpose**. Special meetings of stockholders for any purpose or purposes shall be called only:

(i) by the Board of Directors, the Chair of the Board (as defined in Section 3.17) or the Chief Executive Officer (as defined in Section 4.01); or

(ii) by the Secretary (as defined in Section 4.01), following receipt of one or more written demands to call a special meeting of the stockholders in accordance with, and subject to, this Section 2.03 from stockholders of record who own, in the aggregate, at least 50% of the voting power of the outstanding shares of the Corporation then entitled to vote on the matter or matters to be brought before the proposed special meeting.

(b) **Notice**. A request to the Secretary shall be delivered to him or her at the Corporation's principal executive offices and signed by each stockholder, or a duly authorized agent of such stockholder, requesting the special meeting and shall set forth:

(i) a brief description of each matter of business desired to be brought before the special meeting;

(ii) the reasons for conducting such business at the special meeting;

(iii) the text of any proposal or business to be considered at the special meeting (including the text of any resolutions proposed to be considered and in the event that such business includes a proposal to amend these Bylaws, the language of the proposed amendment); and

(iv) the information required in Section 2.12(b) of these Bylaws (for stockholder nomination demands) or Section 2.12(c) of these Bylaws (for all other stockholder proposal demands), as applicable.

(c) **Business**. Business transacted at a special meeting requested by stockholders shall be limited to the matters described in the special meeting request; *provided, however,* that nothing herein shall prohibit the Board of Directors from submitting matters to the stockholders at any special meeting requested by stockholders.

(d) **Time and Date**. A special meeting requested by stockholders shall be held at such date and time as may be fixed by the Board of Directors; *provided, however,* that the date of any such special meeting shall be not more than 90 days after the request to call the special meeting is received by the Secretary. Notwithstanding the foregoing, a special meeting requested by stockholders shall not be held if:

(i) the Board of Directors has called or calls for an annual or special meeting of the stockholders to be held within 90 days after the Secretary receives the request for the special meeting and the Board of Directors determines in good faith that the business of such meeting includes (among any other matters properly brought before the meeting) the business specified in the request;

(ii) the stated business to be brought before the special meeting is not a proper subject for stockholder action under applicable law;

(iii) an identical or substantially similar item (a "Similar Item") was presented at any meeting of stockholders held within 120 days prior to the receipt by the Secretary of the request for the special meeting (and, for purposes of this Section 2.03(d)(iii), the election of directors shall be deemed a Similar Item with respect to all items of business involving the election or removal of directors); or

(iv) the special meeting request was made in a manner that involved a violation of Regulation 14A under the Securities Exchange Act of 1934, as amended and the rules and regulations promulgated thereunder (the "Exchange Act").

(e) **Revocation**. A stockholder may revoke a request for a special meeting at any time by written revocation delivered to the Secretary at the Corporation's principal executive offices, and if, following such revocation, there are unrevoked requests from stockholders holding in the aggregate less than the requisite number of shares entitling the stockholders to request the calling of a special meeting, the Board of Directors, in its discretion, may cancel the special meeting.

Section 2.04 Adjournments. Any meeting of the stockholders, annual or special, may be adjourned by a majority of the Board of Directors or the Chairman of the Board from time to time to reconvene at the same or some other place, if any, and notice need not be given of any such adjourned meeting if the time, place, if any, thereof and the means of remote communication, if any, are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the Corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than 30 days, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting. If after the adjournment a new record date is fixed for stockholders entitled to vote at the adjourned meeting, the Board of Directors shall fix a new record date for notice of the adjourned meeting and shall give notice of the adjourned meeting to each stockholder of record entitled to vote at the adjourned meeting as of the record date fixed for notice of the adjourned meeting.

Section 2.05 Notice of Meetings. Notice of the place (if any), date, hour, the record date for determining the stockholders entitled to vote at the meeting (if such date is different from the record date for stockholders entitled to notice of the meeting), and means of remote communication, if any, of every meeting of stockholders shall be given by the Corporation not less than ten days nor more than 60 days before the meeting (unless a different time is specified by law) to every stockholder entitled to vote at the meeting as of the record date

for determining the stockholders entitled to notice of the meeting. Notices of special meetings shall also specify the purpose or purposes for which the meeting has been called. Notices of meetings to stockholders may be given by mailing the same, addressed to the stockholder entitled thereto, at such stockholder's mailing address as it appears on the records of the Corporation and such notice shall be deemed to be given when deposited in the U.S. mail, postage prepaid. Without limiting the manner by which notices of meetings otherwise may be given effectively to stockholders, any such notice may be given by electronic transmission in accordance with applicable law. Notice of any meeting need not be given to any stockholder who shall, either before or after the meeting, submit a waiver of notice or who shall attend such meeting, except when the stockholder attends for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of the meeting shall be bound by the proceedings of the meeting in all respects as if due notice thereof had been given.

Section 2.06 List of Stockholders. The Corporation shall prepare a complete list of the stockholders entitled to vote at any meeting of stockholders (*provided, however*, if the record date for determining the stockholders entitled to vote is less than ten days before the date of the meeting, the list shall reflect the stockholders entitled to vote as of the tenth day before the meeting date), arranged in alphabetical order, and showing the address of each stockholder and the number of shares of capital stock of the Corporation registered in the name of each stockholder at least ten days before any meeting of the stockholders. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting for a period of at least ten days before the meeting: (a) on a reasonably accessible electronic network, provided that the information required to gain access to such list was provided with the notice of the meeting; or (b) during ordinary business hours, at the principal place of business of the Corporation. If the meeting is to be held at a place, the list shall also be produced and kept at the time and place of the meeting the whole time thereof and may be inspected by any stockholder who is present. If the meeting is held solely by means of remote communication, the list shall also be open for inspection by any stockholder during the whole time of the meeting as provided by applicable law. Except as provided by applicable law, the stock ledger of the Corporation shall be the only evidence as to who are the stockholders entitled to examine the stock ledger and the list of stockholders or to vote in person or by proxy at any meeting of stockholders.

Section 2.07 Quorum. Unless otherwise required by law, the Certificate of Incorporation or these Bylaws, at each meeting of the stockholders, a majority in voting power of the shares of the Corporation entitled to vote at the meeting, present in person or represented by proxy, shall constitute a quorum. If, however, such quorum shall not be present or represented at any meeting of the stockholders, the chair of the meeting or the stockholders entitled to vote at the meeting, present in person or represented by proxy, shall have power, by the affirmative vote of a majority in voting power thereof, to adjourn the meeting from time to time, in the manner provided in Section 2.04, until a quorum shall be present or represented. A quorum, once established, shall not be broken by the subsequent withdrawal of enough votes to leave less than a quorum. At any such adjourned meeting at which there is a quorum, any business may be transacted that might have been transacted at the meeting originally called.

Section 2.08 Organization. The Board of Directors may adopt by resolution such rules and regulations for the conduct of the meeting of the stockholders as it shall deem appropriate. At every meeting of the stockholders, the Chair of the Board, or in his or her absence or inability to act, the Chief Executive Officer or, in his or her absence or inability to act, the officer or director whom the Board of Directors shall appoint, shall act as chair of, and preside at, the meeting. The Secretary or, in his or her absence or inability to act, the person whom the chair of the meeting shall appoint secretary of the meeting, shall act as secretary of the meeting and keep the minutes thereof. Except to the extent inconsistent with such rules and regulations as adopted by the Board of Directors, the chair of any meeting of the stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chair, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the chair of the meeting, may include, without limitation, the following:

(a) the establishment of an agenda or order of business for the meeting;

(b) the determination of when the polls shall open and close for any given matter to be voted on at the meeting;

(c) rules and procedures for maintaining order at the meeting and the safety of those present;

(d) limitations on attendance at or participation in the meeting to stockholders of record of the corporation, their duly authorized and constituted proxies, or such other persons as the chair of the meeting shall determine;

(e) restrictions on entry to the meeting after the time fixed for the commencement thereof; and

(f) limitations on the time allotted to questions or comments by participants.

Section 2.09 Voting; Proxies.

(a) **General.** Unless otherwise required by law or provided in the Certificate of Incorporation, each stockholder shall be entitled to one vote, in person or by proxy, for each share of capital stock held by such stockholder.

(b) **Election of Directors.** Unless otherwise required by the Certificate of Incorporation, the election of directors shall be by written ballot. Unless otherwise required by law, the Certificate of Incorporation, or these Bylaws, the election of directors shall be decided by a majority of the votes cast at a meeting of the stockholders, at which a quorum is present, by the holders of stock entitled to vote in the election; *provided, however,* that, if the Secretary determines that the number of nominees for director exceeds the number of directors to be elected, directors shall be elected by a plurality of the votes of the shares represented in person or by proxy at any meeting of stockholders, at which a quorum is present, held to elect directors and entitled to vote on such election of directors. For purposes of this Section 2.09(b), a majority of the votes cast means that the number of shares voted "for" a nominee must exceed the votes cast "against" such nominee's election. If a nominee for director who is not an incumbent director does not receive a majority of the votes cast, the nominee shall not be elected.

(c) **Other Matters.** Unless otherwise required by law, the Certificate of Incorporation, or these Bylaws, any matter, other than the election of directors, brought before any meeting of stockholders, at which a quorum is present, shall be decided by the affirmative vote of the majority of shares present in person or represented by proxy at the meeting and entitled to vote on the matter.

(d) **Proxies.** Each stockholder entitled to vote at a meeting of stockholders may authorize another person or persons to act for such stockholder by proxy, but no such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period. The authorization of a person to act as proxy may be documented, signed and delivered in accordance with Section 116 of the General Corporation Law of the State of Delaware (the "DGCL") provided that such authorization shall set forth, or be delivered with, information enabling the Corporation to determine the identity of the stockholder granting such authorization. A proxy shall be irrevocable if it states that it is irrevocable and if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A stockholder may revoke any proxy that is not irrevocable by attending the meeting and voting in person or by delivering to the Secretary a revocation of the proxy or a new proxy bearing a later date.

Section 2.10 Inspectors at Meetings of Stockholders. In advance of any meeting of the stockholders, the Board of Directors shall, appoint one or more inspectors, who may be employees of the Corporation, to act at the meeting or any adjournment thereof and make a written report thereof. The Board of Directors may designate one or more persons as alternate inspectors to replace any inspector who fails to act. If no inspector or alternate is able to act at a meeting, the person presiding at the meeting shall appoint one or more inspectors to act at the meeting. Each

inspector, before entering upon the discharge of his or her duties, shall take and sign an oath faithfully to execute the duties of inspector with strict impartiality and according to the best of his or her ability. The inspector or inspectors may appoint or retain other persons or entities to assist the inspector or inspectors in the performance of their duties. In determining the validity and counting of proxies and ballots cast at any meeting of stockholders, the inspector or inspectors may consider such information as is permitted by applicable law. No person who is a candidate for office at an election may serve as an inspector at such election. When executing the duties of inspector, the inspector or inspectors shall:

(a) ascertain the number of shares outstanding and the voting power of each;

(b) determine the shares represented at the meeting and the validity of proxies and ballots;

(c) count all votes and ballots;

(d) determine and retain for a reasonable period a record of the disposition of any challenges made to any determination by the inspectors; and

(e) certify their determination of the number of shares represented at the meeting and their count of all votes and ballots.

Section 2.11 Fixing the Record Date.

(a) In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than 60 nor less than ten days before the date of such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however,* that the Board of Directors may fix a new record date for the determination of stockholders entitled to notice of or to vote at the adjourned meeting.

(b) In order that the Corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than 60 days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

Section 2.12 Advance Notice of Stockholder Nominations and Proposals.

(a) **Annual Meetings**. At a meeting of the stockholders, only such nominations of persons for the election of directors and such other business shall be conducted as shall have been properly brought before the meeting. To be properly brought before an annual meeting, nominations or such other business must be:

(i) specified in the notice of meeting (or any supplement thereto) given by or at the direction of the Board of Directors or any committee thereof;

(ii) otherwise properly brought before the meeting by or at the direction of the Board of Directors or any committee thereof; or

(iii) otherwise properly brought before an annual meeting by a stockholder who is a stockholder of record of the Corporation at the time such notice of meeting is delivered, who is entitled to vote at the meeting, and who complies with the notice procedures set forth in this Section 2.12.

In addition, any proposal of business (other than the nomination of persons for election to the Board of Directors) must be a proper matter for stockholder action. For business (including, but not limited to, director nominations) to be properly brought before an annual meeting by a stockholder pursuant to Section 2.12(a)(iii), the stockholder or stockholders of record intending to propose the business (the "Proposing Stockholder") must have given timely notice thereof pursuant to this Section 2.12(a), in writing to the Secretary even if such matter is already the subject of any notice to the stockholders or Public Disclosure from the Board of Directors. To be timely, a Proposing Stockholder's notice for an annual meeting must be delivered to the Secretary at the principal executive offices of the Corporation: (x) not later than the close of business on the 90th day, nor earlier than the close of business on the 120th day, in advance of the anniversary of the previous year's annual meeting if such meeting is to be held on a day which is not more than 30 days in advance of the anniversary of the previous year's annual meeting or not later than 60 days after the anniversary of the previous year's annual meeting; and (y) with respect to any other annual meeting of stockholders, including in the event that no annual meeting was held in the previous year, not earlier than the close of business on the 120th day prior to the annual meeting and not later than the close of business on the later of: (1) the 90th day prior to the annual meeting and (2) the close of business on the tenth day following the first date of Public Disclosure of the date of such meeting. In no event shall the Public Disclosure of an adjournment or postponement of an annual meeting commence a new notice time period (or extend any notice time period). For the purposes of this Section 2.12, "Public Disclosure" shall mean a disclosure made in a press release reported by the Dow Jones News Services, The Associated Press, or a comparable national news service or in a document filed by the Corporation with the Securities and Exchange Commission ("SEC") pursuant to Section 13, 14 or 15(d) of the Exchange Act.

(b) **Stockholder Nominations**. For the nomination of any person or persons for election to the Board of Directors pursuant to Section 2.12(a)(iii) or Section 2.12(d), a Proposing Stockholder's timely notice to the Secretary (in accordance with the time periods for delivery of timely notice as set forth in this Section 2.12) shall set forth or include:

(i) the name, age, business address and residence address of each nominee proposed in such notice;

(ii) the principal occupation or employment of each such nominee;

(iii) the class and number of shares of capital stock of the Corporation which are owned of record and beneficially by each such nominee (if any);

(iv) such other information concerning each such nominee as would be required to be disclosed in a proxy statement soliciting proxies for the election of such nominee as a director in an election contest (even if an election contest is not involved) or that is otherwise required to be disclosed, under Section 14(a) of the Exchange Act;

(v) a written questionnaire with respect to the background and qualification of such proposed nominee (which questionnaire shall be provided by the Secretary upon written request) and a written statement and agreement executed by each such nominee acknowledging that such person:

(A) consents to being named in the Corporation's proxy statement, if any, as a nominee and to serving as a director if elected,

(B) intends to serve as a director for the full term for which such person is standing for election, and

(C) makes the following representations: (1) that the director nominee has read and agrees to adhere to the Corporation's policies or guidelines applicable to directors, including with regard to securities trading and (2) that the director nominee is not and will not become a party to any agreement, arrangement or understanding with, and has not given any commitment or assurance to, any person or entity as to how such person, if elected as a director of the Corporation, will act or vote on any nomination or other business proposal, issue or question (a "Voting Commitment") that has not been disclosed to the Corporation or any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a director of the Corporation, with such person's fiduciary duties under applicable law, and (3) that the director nominee is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the Corporation with respect to any direct or indirect compensation, reimbursement or indemnification ("Compensation Arrangement") that has not been disclosed to the Corporation in connection with such person's nomination for director or service as a director; and

(vi) as to the Proposing Stockholder:

(A) the name and address of the Proposing Stockholder as they appear on the Corporation's books and of the beneficial owner, if any, on whose behalf the nomination is being made,

(B) the class and number of shares of the Corporation which are owned by the Proposing Stockholder (beneficially and of record) and owned by the beneficial owner, if any, on whose behalf the nomination is being made, as of the date of the Proposing Stockholder's notice, and a representation that the Proposing Stockholder will notify the Corporation in writing of the class and number of such shares owned of record and beneficially as of the record date for the meeting within five business days after the record date for such meeting,

(C) a description of any agreement, arrangement or understanding with respect to such nomination between or among the Proposing Stockholder or the beneficial owner, if any, on whose behalf the nomination is being made and any of their affiliates or associates, and any others (including their names) acting in concert with any of the foregoing, and a representation that the Proposing Stockholder will notify the Corporation in writing of any such agreement, arrangement or understanding in effect as of the record date for the meeting within five business days after the record date for such meeting,

(D) a description of any agreement, arrangement or understanding (including any derivative or short positions, profit interests, options, hedging transactions and borrowed or loaned shares) that has been entered into as of the date of the Proposing Stockholder's notice by, or on behalf of, the Proposing Stockholder or the beneficial owner, if any, on whose behalf the nomination is being made and any of their affiliates or associates, the effect or intent of which is to mitigate loss to, manage risk or benefit of share price changes for, or increase or decrease the voting power of such person or any of their affiliates or associates with respect to shares of stock of the Corporation, and a representation that the Proposing Stockholder will notify the Corporation in writing of any such agreement, arrangement or understanding in effect as of the record date for the meeting within five business days after the record date for such meeting,

(E) a representation that the Proposing Stockholder is a holder of record of shares of the Corporation entitled to vote at the meeting and intends to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice,

(F) a representation whether the Proposing Stockholder intends to deliver a proxy statement and/or form of proxy to holders of at least the percentage of the Corporation's outstanding capital stock required to approve the nomination and/or otherwise to solicit proxies from stockholders in support of the nomination, and

(G) the names and addresses of other stockholders (including beneficial and record owners) known by the Proposing Stockholder to support the nomination or other business proposal, and to the extent known, the class and number of all shares of the Corporation's capital stock owned beneficially or of record by such other stockholders.

The Corporation may require any proposed nominee to furnish such other information as it may reasonably require to determine the eligibility of such proposed nominee to serve as an independent director of the Corporation or that could be material to a reasonable stockholder's understanding of the independence, or lack thereof, of such nominee.

(c) **Other Stockholder Proposals.** For all business other than director nominations, a Proposing Stockholder's timely notice to the Secretary (in accordance with the time periods for delivery of timely notice as set forth in this Section 2.12) shall set forth as to each matter the Proposing Stockholder proposes to bring before the annual meeting:

(i) a brief description of the business desired to be brought before the annual meeting;

(ii) the reasons for conducting such business at the annual meeting;

(iii) the text of any proposal or business (including the text of any resolutions proposed for consideration and in the event that such business includes a proposal to amend these Bylaws, the language of the proposed amendment);

(iv) any substantial interest (within the meaning of Item 5 of Schedule 14A under the Exchange Act) in such business of such stockholder and the beneficial owner (within the meaning of Section 13(d) of the Exchange Act), if any, on whose behalf the business is being proposed;

(v) any other information relating to such stockholder and beneficial owner, if any, on whose behalf the proposal is being made, required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for the proposal and pursuant to and in accordance with Section 14(a) of the Exchange Act and the rules and regulations promulgated thereunder;

(vi) a description of all agreements, arrangements or understandings between or among such stockholder, the beneficial owner, if any, on whose behalf the proposal is being made, any of their affiliates or associates, and any other person or persons (including their names) in connection with the proposal of such business and any material interest of such stockholder, beneficial owner or any of their affiliates or associates, in such business, including any anticipated benefit therefrom to such stockholder, beneficial owner or their affiliates or associates; and

(vii) all of the other information required by Section 2.12(b)(vi) above.

(d) **Special Meetings of Stockholders**. Only such business shall be conducted at a special meeting of stockholders as shall have been brought before the meeting pursuant to the Corporation's notice of meeting. Nominations of persons for election to the Board of Directors may be made at a special meeting of stockholders called by the Board of Directors at which directors are to be elected pursuant to the Corporation's notice of meeting:

(i) by or at the direction of the Board of Directors or any committee thereof; or

(ii) provided that the Board of Directors has determined that directors shall be elected at such meeting, by any stockholder of the Corporation who is a stockholder of record at the time the notice provided for in this Section 2.12(d) is delivered to the Secretary, who is entitled to vote at the meeting, and upon such election and who complies with the notice procedures set forth in this Section 2.12.

In the event the Corporation calls a special meeting of stockholders for the purpose of electing one or more directors to the Board of Directors, any such stockholder entitled to vote in such election of directors may nominate a person or persons (as the case may be) for election to such position(s) as specified in the Corporation's notice of meeting, if such stockholder delivers a stockholder's notice that complies with the requirements of Section 2.12(b) to the Secretary at the principal executive offices of the Corporation not earlier than the close of business on the 120th day prior to such special meeting and not later than the close of business on the later of: (x) the 90th day prior to such special meeting; or (y) the tenth (10th) day following the date of the first Public Disclosure of the date of the special meeting and of the nominees proposed by the Board of Directors to be elected at such meeting. In no event shall the Public Disclosure of an adjournment or postponement of a special meeting commence a new time period (or extend any notice time period).

(e) **Effect of Noncompliance.** Only such persons who are nominated in accordance with the procedures set forth in this Section 2.12 shall be eligible to be elected at any meeting of stockholders of the Corporation to serve as directors and only such other business shall be conducted at a meeting as shall be brought before the meeting in accordance with the procedures set forth in this Section 2.12. If any proposed nomination was not made or proposed in compliance with this Section 2.12, or other business was not made or proposed in compliance with this Section 2.12, then except as otherwise required by law, the chair of the meeting shall have the power and duty to declare that such nomination shall be disregarded or that such proposed other business shall not be transacted. Notwithstanding anything in these Bylaws to the contrary, unless otherwise required by law, if a Proposing Stockholder intending to propose business or make nominations at an annual meeting or propose a nomination at a special meeting pursuant to this Section 2.12 does not provide the information required under this Section 2.12 to the Corporation, including the updated information required by Section 2.12(b)(vi)(B), Section 2.12(b)(vi)(C) and Section 2.12(b)(vi)(D) within five business days after the record date for such meeting or the Proposing Stockholder (or a qualified representative of the Proposing Stockholder) does not appear at the meeting to present the proposed business or nominations, such business or nominations shall not be considered, notwithstanding that proxies in respect of such business or nominations may have been received by the Corporation.

(f) **Rule 14a-8**. This Section 2.12 shall not apply to a proposal proposed to be made by a stockholder if the stockholder has notified the Corporation of the stockholder's intention to present the proposal at an annual or special meeting only pursuant to and in compliance with Rule 14a-8 under the Exchange Act and such proposal has been included in a proxy statement that has been prepared by the Corporation to solicit proxies for such meeting.

Section 2.13 Stockholder Consent in Lieu of a Meeting.

(a) At any time prior to an IPO, unless otherwise provided in the Certificate of Incorporation, any action required by the DGCL to be taken at any annual or special meeting of stockholders of the Corporation, or any action which may be taken at any annual or special meeting of such stockholders, may be taken without

a meeting, without prior notice, and without a vote, if a consent or consents in writing, setting forth the action so taken, shall be signed by the holders of outstanding voting stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted.

(b) At any time after completion of an IPO: any action required or permitted to be taken by the stockholders of the Corporation must be effected at a duly called annual or special meeting of the stockholders of Corporation and may not be effected by any consent by such stockholders.

(c) "IPO" means the Corporation's first underwritten public offering of its common stock under the Securities Act of 1933, as amended.

Section 2.14 Notices to the Corporation. Whenever notice is to be given to the Corporation by a stockholder under any provision of law or of the Certificate of Incorporation or these Bylaws, such notice shall be delivered to the Secretary at the principal executive offices of the Corporation. If delivered by electronic transmission, the stockholder's notice shall be directed to the Secretary at the electronic mail address or facsimile number, as the case may be, specified in the Corporation's most recent proxy statement.

ARTICLE III
BOARD OF DIRECTORS

Section 3.01 General Powers. The business and affairs of the Corporation shall be managed by or under the direction of the Board of Directors. The Board of Directors may adopt such rules and procedures, not inconsistent with the Certificate of Incorporation, these Bylaws or applicable law, as it may deem proper for the conduct of its meetings and the management of the Corporation.

Section 3.02 Number; Term of Office. The Board of Directors shall consist of such number of directors as fixed from time to time by resolution of a majority of the total number of directors that the Corporation would have if there were no vacancies. Each director shall hold office until a successor is duly elected and qualified or until the director's earlier death, resignation, disqualification or removal.

Section 3.03 Newly Created Directorships and Vacancies. Any newly created directorships resulting from an increase in the authorized number of directors and any vacancies occurring in the Board of Directors, shall be filled by the affirmative votes of a majority of the remaining members of the Board of Directors, although less than a quorum, or by a sole remaining director. A director so elected shall be elected to hold office until the earlier of the expiration of the term of office of the director whom he or she has replaced, a successor is duly elected and qualified, or the earlier of such director's death, resignation or removal.

Section 3.04 Resignation. Any director may resign at any time by notice given in writing or by electronic transmission to the Corporation. Such resignation shall take effect at the date of receipt of such notice by the Corporation or at such later effective date or upon the happening of an event or events as is therein specified.

Section 3.05 Removal. Except as prohibited by applicable law or the Certificate of Incorporation, the stockholders holding a majority of the shares then entitled to vote at an election of directors may remove any director from office with or without cause.

Section 3.06 Fees and Expenses. Directors may receive such reasonable fees for their services on the Board of Directors and any committee thereof and such reimbursement of their actual and reasonable expenses as may be fixed or determined by the Board of Directors.

Section 3.07 Regular Meetings. Regular meetings of the Board of Directors may be held without notice at such times and at such places as may be determined from time to time by the Chairman of the Board.

Section 3.08 **Special Meetings**. Special meetings of the Board of Directors may be held at such times and at such places as may be determined by the Chair of the Board or the Chief Executive Officer on at least 48 hours' notice to each director given by one of the means specified in Section 3.11 hereof other than by mail or on at least three days' notice if given by mail. Special meetings shall be called by the Chair of the Board or the Chief Executive Officer in like manner and on like notice on the written request of any two or more directors. The notice need not state the purposes of the special meeting and, unless indicated in the notice thereof, any and all business may be transacted at a special meeting.

Section 3.09 **Telephone Meetings**. Board of Directors or Board of Directors committee meetings may be held by means of telephone conference or other communications equipment by means of which all persons participating in the meeting can hear each other and be heard. Participation by a director in a meeting pursuant to this Section 3.09 shall constitute presence in person at such meeting.

Section 3.10 **Adjourned Meetings.** A majority of the directors present at any meeting of the Board of Directors, including an adjourned meeting, whether or not a quorum is present, may adjourn and reconvene such meeting to another time and place. At least 24 hours' notice of any adjourned meeting of the Board of Directors shall be given to each director whether or not present at the time of the adjournment, if such notice shall be given by one of the means specified in Section 3.11 hereof other than by mail, or at least three days' notice if by mail. Any business may be transacted at an adjourned meeting that might have been transacted at the meeting as originally called.

Section 3.11 **Notices**. Subject to Section 3.08, Section 3.10 and Section 3.12 hereof, whenever notice is required to be given to any director by applicable law, the Certificate of Incorporation or these Bylaws, such notice shall be deemed given effectively if given in person or by telephone, mail addressed to such director at such director's address as it appears on the records of the Corporation, facsimile, email or by other means of electronic transmission.

Section 3.12 **Waiver of Notice**. Whenever notice to directors is required by applicable law, the Certificate of Incorporation or these Bylaws, a waiver thereof, in writing signed by, or by electronic transmission by, the director entitled to the notice, whether before or after such notice is required, shall be deemed equivalent to notice. Attendance by a director at a meeting shall constitute a waiver of notice of such meeting except when the director attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business on the ground that the meeting was not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special Board of Directors or committee meeting need be specified in any waiver of notice.

Section 3.13 **Organization**. At each regular or special meeting of the Board of Directors, the Chair of the Board or, in his or her absence, another director selected by the Board of Directors shall preside. The Secretary shall act as secretary at each meeting of the Board of Directors. If the Secretary is absent from any meeting of the Board of Directors, an assistant secretary of the Corporation shall perform the duties of secretary at such meeting; and in the absence from any such meeting of the Secretary and all assistant secretaries of the Corporation, the person presiding at the meeting may appoint any person to act as secretary of the meeting.

Section 3.14 **Quorum of Directors**. Except as otherwise provided by these Bylaws, the Certificate of Incorporation or required by applicable law, the presence of a majority of the total number of directors on the Board of Directors shall be necessary and sufficient to constitute a quorum for the transaction of business at any meeting of the Board of Directors.

Section 3.15 **Action by Majority Vote**. Except as otherwise provided by these Bylaws, the Certificate of Incorporation or required by applicable law, the vote of a majority of the directors present at a meeting at which a quorum is present shall be the act of the Board of Directors.

Section 3.16 Directors' Action Without Meeting. Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting if all directors or members of such committee, as the case may be, consent thereto in writing or by electronic transmission and any consent may be documented, signed and delivered in any manner permitted by Section 116 of the DGCL. After an action is taken, the consent or consents relating thereto shall be filed with the minutes of proceedings of the Board of Directors or committee in accordance with applicable law.

Section 3.17 Chair of the Board. The Board of Directors shall annually elect one of its members to be its chair (the "Chair of the Board") and shall fill any vacancy in the position of Chair of the Board at such time and in such manner as the Board of Directors shall determine. Except as otherwise provided in these Bylaws, the Chair of the Board shall preside at all meetings of the Board of Directors and of stockholders. The Chair of the Board shall perform such other duties and services as shall be assigned to or required of the Chair of the Board by the Board of Directors.

Section 3.18 Committees of the Board of Directors. The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the Corporation. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. If a member of a committee shall be absent from any meeting, or disqualified from voting, the remaining member or members present at the meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent permitted by applicable law, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation and may authorize the seal of the Corporation to be affixed to all papers that may require it to the extent so authorized by the Board of Directors. Unless the Board of Directors provides otherwise, at all meetings of such committee, a majority of the then authorized members of the committee shall constitute a quorum for the transaction of business, and the vote of a majority of the members of the committee present at any meeting at which there is a quorum shall be the act of the committee. Each committee shall keep regular minutes of its meetings. Unless the Board of Directors provides otherwise, each committee designated by the Board of Directors may make, alter and repeal rules and procedures for the conduct of its business. In the absence of such rules and procedures each committee shall conduct its business in the same manner as the Board of Directors conducts its business pursuant to this ARTICLE III.

ARTICLE IV
OFFICERS

Section 4.01 Positions and Election. The officers of the Corporation shall be chosen by the Board of Directors and shall include a chief executive officer (the "Chief Executive Officer"), a president (the "President"), a chief financial officer (the "Chief Financial Officer"), a treasurer (the "Treasurer"), and a secretary (the "Secretary"). The Chief Executive Officer, in his discretion, may also elect one or more vice presidents, assistant treasurers, assistant secretaries and other officers in accordance with these Bylaws. Any two or more offices may be held by the same person.

Section 4.02 Term. Each officer of the Corporation shall hold office until such officer's successor is elected and qualified or until such officer's earlier death, resignation or removal. Any officer elected or appointed by the Board of Directors may be removed by the Board of Directors at any time with or without cause by the majority vote of the members of the Board of Directors then in office. The removal of an officer shall be without prejudice to his or her contract rights, if any. The election or appointment of an officer shall not of itself create contract rights. Any officer of the Corporation may resign at any time by giving notice of his or her resignation in writing, or by electronic transmission, to the President or the Secretary. Any such resignation shall take effect at the time specified therein or, if the time when it shall become effective shall not be specified therein, immediately upon its receipt. Unless otherwise specified therein, the acceptance of such resignation shall not be necessary to make it effective.

Should any vacancy occur among the officers, the position shall be filled for the unexpired portion of the term by appointment made by the Board of Directors.

Section 4.03 Chief Executive Officer. The Chief Executive Officer shall, subject to the provisions of these Bylaws and the control of the Board of Directors, have general supervision, direction and control over the business of the Corporation and over its officers. The Chief Executive Officer shall perform all duties incident to the office of the Chief Executive Officer, and any other duties as may be from time to time assigned to the Chief Executive Officer by the Board of Directors, in each case subject to the control of the Board of Directors.

Section 4.04 President. The President shall report and be responsible to the Chief Executive Officer. The President shall have such powers and perform such duties as from time to time may be assigned or delegated to the President by the Board of Directors or the Chief Executive Officer or that are incident to the office of president.

Section 4.05 Vice Presidents. Each vice president of the Corporation shall have such powers and perform such duties as may be assigned to him or her from time to time by the Board of Directors, the Chief Executive Officer or the President, or that are incident to the office of vice president.

Section 4.06 Secretary. The Secretary shall attend all sessions of the Board of Directors and all meetings of the stockholders and record all votes and the minutes of all proceedings, and shall perform like duties for committees of the Board of Directors when required. He or she shall give, or cause to be given, notice of all meetings of the stockholders and meetings of the Board of Directors, and shall perform such other duties as may be prescribed by the Board of Directors, the Chair of the Board or the Chief Executive Officer. The Secretary shall keep in safe custody the seal of the Corporation and have authority to affix the seal to all documents requiring it and attest to the same.

Section 4.07 Chief Financial Officer. The Chief Financial Officer shall be the principal financial officer of the Corporation and shall have such powers and perform such duties as may be assigned by the Board of Directors, the Chair of the Board, or the Chief Executive Officer.

Section 4.08 Treasurer. The treasurer of the Corporation shall have the custody of the Corporation's funds and securities, except as otherwise provided by the Board of Directors, and shall keep full and accurate accounts of receipts and disbursements in records belonging to the Corporation and shall deposit all moneys and other valuable effects in the name and to the credit of the Corporation in such depositories as may be designated by the Board of Directors. The treasurer shall disburse the funds of the Corporation as may be ordered by the Board of Directors, taking proper vouchers for such disbursements, and shall render to the Chief Executive Officer and the President and the directors, at the regular meetings of the Board of Directors, or whenever they may require it, an account of all his or her transactions as treasurer and of the financial condition of the Corporation.

Section 4.09 Other Officers. Such other officers as the Board of Directors may choose shall perform such duties and have such powers as from time to time may be assigned to them by the Board of Directors. The Board of Directors may delegate to any other officer of the Corporation the power to choose such other officers and to prescribe their respective duties and powers.

Section 4.10 Duties of Officers May Be Delegated. In case any officer is absent, or for any other reason that the Board of Directors may deem sufficient, the Chief Executive Officer or the President or the Board of Directors may delegate for the time being the powers or duties of such officer to any other officer or to any director.

ARTICLE V
INDEMNIFICATION

Section 5.01 Indemnification. The Corporation shall indemnify and hold harmless to the fullest extent permitted by applicable law as it presently exists or may hereafter be amended, any person who was or is made or is

threatened to be made a party or is otherwise involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative (a "Proceeding"), by reason of the fact that he or she, or a person for whom he or she is the legal representative, is or was a director, officer or employee of the Corporation or, while a director, officer or employee of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, enterprise or nonprofit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including attorneys' fees) actually and reasonably incurred by such person. Notwithstanding the preceding sentence, the Corporation shall be required to indemnify a person in connection with a Proceeding (or part thereof) commenced by such person only if the commencement of such Proceeding (or part thereof) by the person was authorized in the specific case by the Board of Directors.

Section 5.02 Advancement of Expenses. The Corporation shall pay the expenses (including attorneys' fees) actually and reasonably incurred by a director, officer or employee of the Corporation in defending any Proceeding in advance of its final disposition, upon receipt of an undertaking by or on behalf of such person to repay all amounts advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal that such person is not entitled to be indemnified for such expenses under this Section 5.02 or otherwise. Payment of such expenses actually and reasonably incurred by such person, may be made by the Corporation, subject to such terms and conditions as the general counsel of the Corporation in his or her discretion deems appropriate.

Section 5.03 Non-Exclusivity of Rights. The rights conferred on any person by this ARTICLE V will not be exclusive of any other right which such person may have or hereafter acquire under any statute, provision of the Certificate of Incorporation, these Bylaws, agreement, vote of stockholders or disinterested directors, or otherwise, both as to action in his or her official capacity and as to action in another capacity while holding office. The Corporation is specifically authorized to enter into individual contracts with any or all of its directors, officers, employees or agents respecting indemnification and advances, to the fullest extent not prohibited by the DGCL.

Section 5.04 Other Indemnification. The Corporation's obligation, if any, to indemnify any person who was or is serving at its request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, enterprise or nonprofit entity shall be reduced by any amount such person may collect as indemnification from such other corporation, partnership, joint venture, trust, enterprise or nonprofit entity.

Section 5.05 Insurance. The Corporation may purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the Corporation, or is or was serving at the request of Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, enterprise or nonprofit entity against any liability asserted against him or her and incurred by him or her in any such capacity, or arising out of his or her status as such, whether or not the Corporation would have the power to indemnify him or her against such liability under the provisions of the DGCL.

Section 5.06 Repeal, Amendment or Modification. Any amendment, repeal or modification of this ARTICLE V shall not adversely affect any right or protection hereunder of any person in respect of any act or omission occurring prior to the time of such repeal or modification.

ARTICLE VI
STOCK CERTIFICATES AND THEIR TRANSFER

Section 6.01 Certificates Representing Shares. The shares of stock of the Corporation shall be represented by certificates; provided that the Board of Directors may provide by resolution or resolutions that some or all of any class or series shall be uncertificated shares that may be evidenced by a book-entry system maintained by the registrar of such stock. If shares are represented by certificates, such certificates shall be in the form, other than bearer form, approved by the Board of Directors. The certificates representing shares of stock shall be signed by, or in the name of, the Corporation by any two authorized officers of the Corporation. Any or all such signatures

may be facsimiles. In case any officer, transfer agent or registrar who has signed such a certificate ceases to be an officer, transfer agent or registrar before such certificate has been issued, it may nevertheless be issued by the Corporation with the same effect as if the signatory were still such at the date of its issue.

Section 6.02 Transfers of Stock. Stock of the Corporation shall be transferable in the manner prescribed by law and in Article IX of these Bylaws.

Section 6.03 Transfer Agents and Registrars. The Board of Directors may appoint, or authorize any officer or officers to appoint, one or more transfer agents and one or more registrars.

Section 6.04 Lost, Stolen or Destroyed Certificates. The Board of Directors or the Secretary may direct a new certificate or uncertificated shares to be issued in place of any certificate theretofore issued by the Corporation alleged to have been lost, stolen or destroyed upon the making of an affidavit of that fact by the owner of the allegedly lost, stolen or destroyed certificate. When authorizing such issue of a new certificate or uncertificated shares, the Board of Directors or the Secretary may, in its discretion and as a condition precedent to the issuance thereof, require the owner of the lost, stolen or destroyed certificate, or the owner's legal representative to give the Corporation a bond sufficient to indemnify it against any claim that may be made against the Corporation with respect to the certificate alleged to have been lost, stolen, or destroyed or the issuance of such new certificate or uncertificated shares.

ARTICLE VII
GENERAL PROVISIONS

Section 7.01 Seal. The seal of the Corporation shall be in such form as shall be approved by the Board of Directors. The seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise, as may be prescribed by law or custom or by the Board of Directors.

Section 7.02 Fiscal Year. The fiscal year of the Corporation shall be the calendar year.

Section 7.03 Checks, Notes, Drafts, Etc. All checks, notes, drafts or other orders for the payment of money of the Corporation shall be signed, endorsed or accepted in the name of the Corporation by such officer, officers, person or persons as from time to time may be designated by the Board of Directors or by an officer or officers authorized by the Board of Directors to make such designation.

Section 7.04 Conflict with Applicable Law or Certificate of Incorporation. These Bylaws are adopted subject to any applicable law and the Certificate of Incorporation. Whenever these Bylaws may conflict with any applicable law or the Certificate of Incorporation, such conflict shall be resolved in favor of such law or the Certificate of Incorporation.

Section 7.05 Books and Records. Any records administered by or on behalf of the Corporation in the regular course of its business, including its stock ledger, books of account and minute books, may be maintained on any information storage device, method or one or more electronic networks or databases (including one or more distributed electronic networks or databases); provided that the records so kept can be converted into clearly legible paper form within a reasonable time, and, with respect to the stock ledger, the records so kept comply with Section 224 of the DGCL. The Corporation shall so convert any records so kept upon the request of any person entitled to inspect such records pursuant to applicable law.

Section 7.06 Forum for Adjudication of Disputes.

(a) Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal

district court for the State of Delaware) shall, to the fullest extent permitted by law, be the sole and exclusive forum for:

(i) any derivative action or proceeding brought on behalf of the Corporation;

(ii) any action asserting a claim for breach of a fiduciary duty owed by any director, officer, employee or stockholder of the Corporation to the Corporation or the Corporation's stockholders;

(iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, the Certificate of Incorporation, or these Bylaws (as either may be amended or restated) or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware; or

(iv) any action asserting a claim governed by the internal affairs doctrine.

If any action the subject matter of which is within the scope of this Section 7.06 is filed in a court other than a court located within the State of Delaware (a "Foreign Action") in the name of any stockholder, such stockholder shall be deemed to have consented to: (i) the personal jurisdiction of the state and federal courts located within the State of Delaware in connection with any action brought in any such court to enforce this Section 7.06 (an "Enforcement Action"); and (ii) having service of process made upon such stockholder in any such Enforcement Action by service upon such stockholder's counsel in the Foreign Action as agent for such stockholder. Any person or entity purchasing or otherwise acquiring any interest in shares of capital stock of the Corporation shall be deemed to have notice of and consented to the provisions of this Section 7.06(a).

ARTICLE VIII
AMENDMENTS

These Bylaws may be adopted, amended or repealed by the stockholders entitled to vote; *provided, however,* that the Corporation may, in its Certificate of Incorporation, confer the power to adopt, amend or repeal these Bylaws upon the Board of Directors; and, provided further, that any proposal by a stockholder to amend these Bylaws will be subject to the provisions of ARTICLE II of these Bylaws except as otherwise required by law. The fact that such power has been so conferred upon the Board of Directors will not divest the stockholders of the power, nor limit their power to adopt, amend or repeal Bylaws.

ARTICLE IX
STOCK TRANSFERS

Section 9.01 **Certain Definitions**. As used in this Article IX, the following terms have the following meanings:

(a) "Exempt Transfer" means any of the following Transfers:

(i) a Transfer of Shares by a natural person to one or more of such person's spouse, lineal descendants (whether natural or adopted), siblings or any trust solely for the benefit of such person and/or such person's spouse, lineal descendants and/or siblings, whether inter vivos, by will or pursuant to the laws of descent and distribution (a "Family Transfer");

(ii) a Transfer of Shares by an entity to (A) its stockholders, members, partners or other owners (or to the estates thereof) in proportion to their relative economic interests in such entity or (B) any other entity wholly owned by such entity (an "Affiliate Transfer");

(iii) a redemption by the Corporation of any Shares pursuant to the terms of any stock option agreement or restricted stock agreement entered into between the Corporation and any of its directors, officers, employees, consultants or other service providers pursuant to an equity incentive plan approved by the Board of Directors;

(iv) a sale of Shares pursuant to an Approved Sale (as defined in Section 9.05); or

(v) any other Transfer that is consented to in writing by either (A) the Board of Directors or (B) the holders of a majority of the issued and outstanding voting capital stock of the Corporation not held by the transferor (a "Consent Transfer").

(b) "Sale of the Corporation" means any of the following transactions:

(i) the sale, conveyance, transfer or other disposition of all or substantially all of the assets of the Corporation and its consolidated subsidiaries in a single transaction or series of related transactions (other than a collateral assignment, pledge, mortgage or similar grant of security interest in such assets to a *bona fide* lender);

(ii) the merger or consolidation of the Corporation with or into one or more other corporations or entities in which the stockholders of the Corporation immediately prior to such merger or consolidation own less than a majority of the voting securities of the Corporation immediately following such merger or consolidation; or

(iii) the consummation by the Corporation or its stockholders of any other transaction or series of related transactions (other than an issuance by the Corporation of new shares of its capital stock for cash for the primary purpose of raising capital) in which the stockholders of the Corporation immediately prior to such transaction or series of related transactions own less than a majority of the voting securities of the Corporation immediately following such transaction or series of related transactions.

(c) "Share" means any share of the capital stock of the Corporation or any beneficial interest therein.

(d) "Transfer," when used as a noun, means a sale, gift, transfer, assignment, hypothecation, pledge, encumbrance, abandonment, contribution, distribution, exchange or other disposition (in each case, whether voluntarily or involuntarily and whether by contract, operation of law, testamentary transfer, gift or otherwise) of one or more Shares, or any interest therein; when used as a verb, means the act of effecting any of the foregoing transactions; and when used as any other part of speech shall have correlative meaning.

Section 9.02 Conditions to Transfer Shares.

(a) **Permitted Transfers.** No Transfer may be effected unless each of the following four conditions is satisfied with respect to such Transfer:

(i) the Transfer is one of the following types:

(A) an Exempt Transfer;

(B) a Transfer (other than an Exempt Transfer that is otherwise permitted by this Section 9.02(a)) in which a stockholder (including a stockholder exercising co-sale rights pursuant to Section 9.03) of the Corporation voluntarily sells Shares for consideration that consists

solely of cash payable at closing (a "Cash Sale"), as and to the extent permitted by Section 9.03(c);

(C) a Transfer (other than an Exempt Transfer that is otherwise permitted by this Section 9.02(a)) that occurs by operation of law or that is otherwise involuntary, whether upon the death, divorce or bankruptcy of a stockholder or otherwise (an "Involuntary Transfer"), but subject to the purchase rights set forth in Section 9.04; or

(D) a Transfer to the Corporation and/or one or more of its stockholders in consummation of a purchase option in respect of a Cash Sale pursuant to Section 9.03(d) or a purchase right in respect of an Involuntary Transfer pursuant to Section 9.04(d);

(ii) the procedural conditions set forth in Section 9.02(b) have been satisfied with respect to such Transfer;

(iii) the Transfer does not violate any agreement to which the Corporation is a party (whether or not the transferor is a party to such agreement), including any agreement relating to any indebtedness or debt financing of the Corporation, or any agreement to which the transferor is a party or by which the transferor or the Shares subject to the Transfer are bound (whether or not the Corporation is a party to such agreement), in each case after giving effect to any applicable consents or waivers that have been obtained in writing; and

(iv) neither the transferee nor any affiliate of the transferee competes materially with the Corporation or any of its subsidiaries.

(b) **Procedural Conditions**. A Transfer otherwise permitted by Section 9.02(a) shall be valid only if:

(i) with respect to a Family Transfer or an Affiliate Transfer, the transferor delivers to the Corporation a written notice of Transfer (an "Exempt Transfer Notice") that specifies, at a minimum, the name and address of the transferee, the relationship of the transferee to the transferor (sufficient to establish the Transfer as a Family Transfer or an Affiliate Transfer), the number and series or class of Shares subject to the Transfer, the effective date of the Transfer (which must be at least 15 business days after the Exempt Transfer Notice is delivered to the Corporation) and a summary of the other material terms and conditions of the Transfer;

(ii) with respect to a Consent Transfer, the transferor delivers to the Corporation a written request for consent to Transfer (a "Transfer Consent Request") that specifies, at a minimum, the name and address of the transferee, the number and series or class of Shares subject to the Transfer and a summary of the other material terms and conditions of the Transfer (and, if the Transfer is not approved as a Consent Transfer by requisite action of the Board of Directors, the Corporation will forward a copy of the Transfer Consent Request to each holder of Shares other than the transferor);

(iii) the transferor and the transferee execute and deliver to the Corporation such documents and instruments of conveyance as may be reasonably requested by the Corporation to effect and evidence the Transfer and to confirm the agreement of the transferee to be bound by these Bylaws;

(iv) the transferor and the transferee provide to the Corporation the transferee's taxpayer identification number and any other information reasonably requested by the Corporation to permit the Corporation to file all legally required forms, information statements and returns;

(v) if requested by the Corporation, the transferor furnishes to the Corporation an opinion of counsel (which counsel and opinion shall be reasonably satisfactory to the Corporation) that the Transfer (A) will not cause the Corporation to be deemed to be an "investment company" under the Investment Company Act of 1940, as amended, and (B) has either been registered under the Securities Act and any applicable state securities laws or is exempt from all applicable registration requirements and will not violate any applicable laws regulating the offering, sale or transfer of securities; and

(vi) the Corporation is reimbursed by the transferor and/or the transferee for all costs and expenses that the Corporation reasonably incurs in connection with the Transfer.

(c) **Effective Time; Distributions and Allocations**. A Transfer permitted by this Section 9.02 shall be effective and recognized by the Corporation for all purposes (including for determining the recipient of any dividends or distribution in respect of the Transferred Shares) upon receipt by the Corporation of evidence of the satisfaction of all applicable conditions to such Transfer or on such later date as may be specified in the applicable instrument of conveyance delivered to the Corporation pursuant to Section 9.02(b)(iii).

(d) **Non-Compliant Transfers Void**. Any Transfer (or attempted or purported Transfer) that is not permitted by this Section 9.02 shall be void and ineffectual and shall not bind or be recognized by the Corporation or any other party.

Section 9.03 Cash Sale Purchase Options and Co-Sale Rights.

(a) **Cash Sale Notice**. A stockholder of the Corporation wishing to effect a Cash Sale (the "Seller") must deliver to the Corporation a written notice (a "Cash Sale Notice") that specifies, at a minimum, the name and address of the proposed purchaser (the "Third Party Transferee"), the number and class or series of Shares subject to the Cash Sale (the "Offered Shares"), the purchase price per Offered Share (which, if the Offered Shares consist of more than one class or series, shall be separately identified for each such class or series) and a summary of the other material terms and conditions of the Cash Sale. The Cash Sale Notice must be accompanied by a copy of any letter of intent or other document relating to the proposed sale. Upon receipt, the Corporation shall promptly forward a copy of the Cash Sale Notice to each stockholder of the Corporation other than the Seller, together with a summary of such stockholder's rights pursuant to this Section 9.03.

(b) **Cash Sale Purchase Options**. The Corporation and its stockholders (other than the Seller) shall have the right and option, but not the obligation, to purchase all or any portion of the Offered Shares on the same terms and conditions as specified in the Cash Sale Notice (to the extent practicable), subject to the priorities and allocation procedures set forth in this Section 9.03(b).

(i) The Corporation shall have the first option to purchase all or any portion of the Offered Shares, exercisable for a period of 30 days following the Corporation's receipt of the Cash Sale Notice. At the end of such exercise period, the Corporation will promptly provide to each stockholder a written notice specifying the Offered Shares that the Corporation elects to purchase (if any) and the remaining Offered Shares that the Corporation does not elect to purchase (if any) (the "Corporation Election Notice").

(ii) If the Corporation does not elect to purchase all of the Offered Shares, the Corporation's stockholders (other than the Seller) shall have the second option to purchase all or any portion of the Offered Shares that the Corporation has not elected to purchase, exercisable for a period of 30 days following the Corporation's delivery of the Corporation Election Notice. To exercise such option, a stockholder must give the Corporation written notice during such period setting forth the maximum Offered Shares that the stockholder irrevocably commits to purchase. If this option is exercised with respect to more than the available Offered Shares, the available Offered Shares will be allocated among the exercising stockholders on a pro rata basis (based on the relative number of Shares owned by each) with

corresponding pro rata overallotment rights to purchase any of such Offered Shares not elected to be purchased by the other stockholders. At the end of such exercise period, the Corporation will promptly provide to each stockholder a written notice specifying the Offered Shares that the Corporation and each stockholder has elected to purchase (if any) and the remaining Offered Shares that the Corporation and the stockholders have not elected to purchase (if any) (the "Stockholders Election Notice").

(c) **Cash Sale Co-Sale Rights.** Any stockholder of the Corporation (other than the Seller) who does not elect to purchase Offered Shares pursuant to Section 9.03(b) shall have the right to participate as a seller (a "Co-Seller") in each sale transaction involving the Offered Shares pursuant to Section 9.03(d) and Section 9.03(e) (whether one or more, the "Cash Sales"). To exercise such right, a Co-Seller must deliver written notice to the Corporation (a "Co-Sale Notice") during the 15 day period (the "Co-Sale Election Period") immediately following the Corporation's delivery of the later of (i) a Corporation Election Notice or a Stockholders Election Notice. A Co-Sale Notice must set forth the number and class or series of Shares that the Co-Seller desires to sell in the Cash Sales. At the end of the Co-Sale Election Period, the Corporation will promptly provide to the Seller, each stockholder that has exercised purchase rights pursuant to Section 9.03(b), if any, and each Co-Seller, if any, a written notice (the "Final Election Notice") stating whether there are any Co-Sellers and, if so, the name of each Co-Seller, the aggregate number of Shares of each class or series owned by each Co-Seller (for purposes of calculating pro rata amounts pursuant to Section 9.03(f)) and the number and class or series of Shares that each Co-Seller desires to sell pursuant to Section 9.03(d) and Section 9.03(e). The Final Election Notice will also state the date of the closing of any Cash Sale to occur pursuant to Section 9.03(d) and a preliminary allocation of the number and class or series of Shares to be purchased and sold by each party in each Cash Sale (assuming that the Third Party Transferee is not willing to purchase additional Shares from the Co-Sellers as contemplated in Section 9.03(e)).

(d) **Closing of Purchase Option Elections.** If the Corporation and/or any of its stockholders have elected to purchase any Offered Shares pursuant to Section 9.03(b), such purchase shall be closed at the Corporation's executive offices on the tenth business day following the last day of the Co-Sale Election Period. If one or more Co-Sellers have elected to participate in the Cash Sales, the number and class or series of Shares to be sold by the Seller and each of the Co-Sellers pursuant to this Section 9.03(d) shall be determined in accordance with Section 9.03(f). At such closing, the purchaser(s) will pay the seller(s) the purchase price for the Shares, based on the applicable per Share price set forth in the Cash Sale Notice, and the seller(s) will endorse and deliver to the purchaser(s) certificate(s) evidencing such Shares. The purchaser(s) will be entitled to receive customary representations and warranties from the seller(s) in connection with the purchase of Shares pursuant to this Section 9.03(d) (but no Co-Seller will be required to make any representations or warranties other than with respect to its Shares or to enter into indemnification or contribution obligations that are joint and several with any other party).

(e) **Transfer of Remaining Offered Shares.** Subject to the conditions specified in Section 9.02 and the co-sale rights of the Co-Sellers provided in this Section 9.03(e), the Seller may Transfer any Offered Shares that are not purchased by the Corporation and/or the stockholders pursuant to Section 9.03(d) (the "Remaining Offered Shares") to the Third Party Transferee, at the price and on the terms specified in the Cash Sale Notice, during the 90 day period immediately following the closing of the sale of Offered Shares pursuant to Section 9.03(d) or, if the Corporation and the stockholders did not elect to purchase any Offered Shares, during the 90 day period immediately following the delivery of the Final Election Notice (the "Permitted Sale Period"). If one or more Co-Sellers have elected to participate in the Cash Sales, the Seller will use commercially reasonable efforts to arrange for the Third Party Transferee to purchase the Shares of the Co-Sellers specified in their respective Co-Sale Notices (other than Shares sold by a Co-Seller pursuant to Section 9.03(d)) in addition to the Remaining Offered Shares of the Seller. If the Third Party Transferee is unwilling to purchase all of such Shares, then the number and class or series of Shares to be sold by the Seller and each of the Co-Sellers pursuant to this Section 9.03(e) shall be determined in accordance with Section 9.03(f). Except as otherwise provided in Section 9.03(f), the Seller and the Co-Sellers shall consummate the sale of their respective Shares to the Third Party Transferee in accordance with the terms and conditions specified in the Cash Sale Notice (but no Co-Seller will be required to make any representations or warranties other than with respect to its Shares or to enter into indemnification or contribution obligations that are joint and several with any other party). Any Remaining Offered Shares that are not Transferred

in accordance with this Section 9.03(e) during the Permitted Sale Period must be retained by the Seller and may not be Transferred thereafter without compliance de novo with the provisions of Section 9.02 and, if applicable, this Section 9.03.

(f) **Determination and Allocation of Co-Sale Shares.**

(i) Subject to the other provisions of this Section 9.03(f), the aggregate number of Shares to be sold in a Cash Sale (the "Available Shares"), when less than the aggregate number of Shares desired to be sold by the Seller and the Co-Sellers, shall be allocated among the Seller and the Co-Sellers as follows: (A) each Co-Seller shall be allocated their pro rata share of the Available Shares (with pro rata share based on the relative number of Shares held by the Seller and each of the Co-Sellers); provided, however, that if any Co-Seller elects to sell less than their pro rata share of the Available Shares to be allocated (a "Limited Co-Seller"), (1) each Limited Co-Seller shall be allocated only the number of Shares that they have elected and (2) each Co-Seller that is not a Limited Co-Seller shall be allocated their pro rata share of the Available Shares that have not been allocated to the Limited Co-Sellers (with pro rata share based on the relative number of Shares held by the Seller and each of the Co-Sellers that are not Limited Co-Sellers), with this proviso applied ad infinitum as applicable, and (B) the remaining Available Shares shall be allocated to the Seller. For purposes of allocating Available Shares under Section 9.03(e), each Co-Seller's election shall be reduced by the number of Shares sold by such Co-Seller pursuant to Section 9.03(d).

(ii) If the Third Party Transferee refuses to consummate a Cash Sale pursuant to Section 9.03(e) with the participation of the Co-Sellers, the Seller shall alone consummate the transaction with the Third Party Transferee but shall simultaneously purchase from each Co-Seller the number of Shares that such Co-Seller was entitled to sell in the transaction for a purchase price equal to the net sale proceeds received by the Seller multiplied by a fraction, the numerator of which is the number of Shares purchased by the Seller from the Co-Seller and the denominator of which is the number of Shares sold by the Seller to the Third Party Transferee.

Section 9.04 Involuntary Transfer Purchase Rights.

(a) **Involuntary Transfer Notice.** In the event of an Involuntary Transfer, the transferor (or the transferor's personal representative) and the transferee must deliver to the Corporation at the earliest practicable time a written notice (an "Involuntary Transfer Notice") that specifies, at a minimum, the name of the transferor, the name and address of the transferee, the number and class or series of Shares subject to the Involuntary Transfer (the "Subject Shares"), the date of the Involuntary Transfer and a summary of the circumstances and material terms of the Involuntary Transfer.

(b) **Involuntary Transfer Purchase Right.** Upon receipt of the Involuntary Transfer Notice (or otherwise becoming aware of the occurrence of an Involuntary Transfer), the Corporation shall have the right (but not the obligation) to purchase all (or any lesser portion as the Corporation may elect) of the Subject Shares at the Involuntary Transfer Purchase Price (the "Involuntary Transfer Purchase Right"). The Corporation will be entitled to exercise the Involuntary Transfer Purchase Right at any time during the period (the "Involuntary Transfer Purchase Period") beginning on the date that the Involuntary Transfer Notice is given to the Corporation (or on such earlier date on which the Corporation first becomes aware of the Involuntary Transfer) and ending on the 90th day after the date that the Involuntary Transfer Notice is given to the Corporation.

(c) **Involuntary Transfer Purchase Price.** The purchase price payable for each Subject Share (the "Involuntary Transfer Purchase Price") shall equal the Third Party Valuation Amount of such Subject Share as of the date of the Involuntary Transfer. "Third Party Valuation Amount" means, with respect to a Share of any class or series, the amount that would be distributable in respect of such Share if (i) the assets of the Corporation as a going concern were sold in an orderly transaction designed to maximize proceeds therefrom, (ii) the

Corporation immediately paid all Corporation liabilities and amounts (such as legal fees and customary closing costs) that would normally be incurred by the Corporation if the assets of the Corporation were sold in such a transaction and (iii) the net proceeds from such a transaction were then distributed in a liquidation of the Corporation in accordance with the Certificate of Incorporation. The Third Party Valuation Amount shall be determined by a nationally recognized appraisal company, consulting firm, investment bank, accounting firm or financial institution with no prior professional relationship with the Corporation that is selected in good faith by the Board of Directors. All costs and expenses incurred in connection with determining the Third Party Valuation Amount shall be initially borne by the Corporation; provided, however, that if at least 50% of the Subject Shares specified in the Involuntary Transfer Notice are purchased pursuant to Section 9.04(d), the Corporation shall be reimbursed for 50% of such costs and expenses from the purchase price otherwise payable at the closing pursuant to Section 9.04(d).

(d) **Exercise of Involuntary Transfer Purchase Right.** To exercise the Involuntary Transfer Purchase Right, the Corporation must give written notice of exercise (the "Involuntary Transfer Purchase Notice") during the Involuntary Transfer Purchase Period to the holder of the Subject Shares. The Involuntary Transfer Purchase Notice must specify the Subject Shares that the Corporation is electing to acquire and the Involuntary Transfer Purchase Price determined in accordance with Section 9.04(c). Failure of the Corporation to deliver an Involuntary Transfer Purchase Notice during the Involuntary Transfer Purchase Period will be deemed a waiver of the Corporation's Involuntary Transfer Purchase Right with respect to the applicable Involuntary Transfer. The purchase of the Subject Shares specified in the Involuntary Transfer Purchase Notice shall be closed at the Corporation's executive offices on the 10th business day after the Corporation delivers the Involuntary Transfer Purchase Notice. At the closing, the Corporation will pay the Involuntary Transfer Purchase Price to the holder of the purchased Subject Shares, and such holder will endorse and deliver the certificate(s) evidencing such Subject Shares to the Corporation. The Corporation will be entitled to receive customary representations and warranties from the holder of the Subject Shares in connection with the purchase of the Subject Shares pursuant to this Section 9.04(d).

Section 9.05 Approved Sale.

(a) **Generally.** If a Sale of the Corporation that satisfies the conditions specified in Section 9.05(b) and Section 9.05(c) is approved by the Board of Directors (an "Approved Sale"), each stockholder shall cooperate fully with the Corporation, the purchasers and the other stockholders to consummate the Approved Sale at the earliest practicable time on the terms approved by the Board of Directors. Without limiting the generality of the foregoing, each stockholder shall (i) vote for the Approved Sale at any meeting of the stockholders of the Corporation or execute a written consent in lieu of such meeting to consent to and approve the Approved Sale, (ii) waive any dissenters' rights, appraisal rights or other similar rights that may be applicable to the Approved Sale and otherwise assert no objections to the Approved Sale or the process by which the Approved Sale was arranged and (iii) execute and deliver all documents and instruments (including any purchase, redemption, merger, recapitalization or other similar agreement approved by the Board of Directors and any stock certificate, stock power, assignment or other conveyance document) and take all other actions that are necessary or reasonably requested by the Corporation to cause the consummation of the Approved Sale at the earliest practicable time on the terms approved by the Board of Directors.

(b) **Allocation of Consideration.** The consideration payable in connection with the Approved Sale and available for distribution to the stockholders of the Corporation (subject to any holdback, escrow or similar arrangements) shall be allocated in accordance with the liquidation provisions set forth in the Certificate of Incorporation. All holders of a particular class or series of capital stock of the Corporation shall receive the same form of consideration per share or, if holders of a particular class or series of capital stock are given an option as to the form of consideration to be received, all holders of such class or series shall be given the same option.

(c) **Allocation of Liability.** In connection with the Approved Sale, each stockholder may be required to (and shall, to the extent so required) make customary representations and warranties, agree to customary

covenants (including in respect of confidentiality, non-solicitation and non-competition) and be liable severally (in proportion to the stockholder's *pro rata* share of the proceeds from the Approved Sale), and not jointly, for any indemnification obligations of the Corporation and/or the stockholders (whether pursuant to the definitive acquisition agreement, a contribution agreement or as otherwise specified by the Board of Directors); provided, however, that (i) no stockholder shall be required to bear any liability for indemnification obligations that relate to another stockholder individually (such as indemnification for any breach of representations and warranties regarding such other stockholder's ownership of Shares or any breach by such other stockholder of its individual covenants) and (ii) the amount of each stockholder's indemnification obligation may not exceed the aggregate consideration received by such stockholder in respect of the Approved Sale.

(d) **Purchaser Representative**. If the Corporation enters into any negotiation or transaction for which Rule 506 promulgated by the Securities and Exchange Commission (the "SEC") (or any similar rule then in effect) may be available, each stockholder that is not an "accredited investor" (within the meaning of Rule 501(a) promulgated by the SEC) will, at the request of the Corporation, appoint a purchaser representative (as such term is defined in Rule 501 promulgated by the SEC). If the purchaser representative is approved by the Board of Directors, the Corporation will pay the fees of such purchaser representative.

(e) **Expenses**. Each stockholder will bear his, her or its *pro rata* share (based on the relative amount of proceeds received by each stockholder from the Approved Sale) of the reasonable costs and expenses reasonably incurred by the Corporation and the stockholders in connection with negotiating, documenting and consummating the Approved Sale (but only if the Approved Sale is actually consummated).

(f) **Non-Compliance**. If any stockholder (a "Non-Complying Stockholder") fails to deliver any certificate(s) representing Shares to be transferred pursuant to an Approved Sale, either the Corporation or the acquirer in the Approved Sale may, at its option, in addition to all other remedies it may have, deposit the purchase price for such Shares with any national bank or trust company having combined capital, surplus and undivided profits in excess of $100,000,000 and that has agreed to act as escrow agent in the manner contemplated by this Section 9.05. Upon such deposit, the Corporation will cancel the certificate(s) representing such Shares and all of the Non-Complying Stockholder's rights in and to such Shares will terminate. If the Approved Sale provided for the transfer of such Shares to any person or entity other than the Corporation, the Corporation will also issue, in lieu of such cancelled certificate(s), a new certificate representing such Shares in the name of such other person or entity. Thereafter, upon delivery to the Corporation by such Non-Complying Stockholder of the certificate(s) representing such Shares (duly endorsed for transfer (or with stock powers or other appropriate instruments of transfer duly endorsed), with signature guaranteed, free and clear of any liens or encumbrances, and with all applicable stock transfer tax stamps affixed), the Corporation will instruct the escrow agent to deliver the purchase price (without interest) to such Non-Complying Stockholder.

Sections 9.01 through 9.06 of this Article IX shall terminate upon an IPO.

Section 9.07 "Market Stand-off" Agreement. Each stockholder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the registration by the Corporation for its own behalf of shares of its Common Stock or any other equity securities under the Securities Act of 1933, as amended, on a registration statement on Form S-1, and ending on the date specified by the Corporation and the managing underwriter (such period not to exceed one hundred eighty (180) days in the case of the IPO, or such other period as may be requested by the Corporation or an underwriter to accommodate regulatory restrictions on (1) the publication or other distribution of research reports and (2) analyst recommendations and opinions, including, but not limited to, the restrictions contained in applicable FINRA rules, or any successor provisions or amendments thereto), (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock held immediately before the effective date of the registration statement for such offering or (ii) enter into any swap or other arrangement that

transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise. The foregoing provisions of this Section 9.07 shall apply only to the IPO, shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, or the transfer of any shares to any trust for the direct or indirect benefit of the stockholder or the immediate family of the stockholder, provided that the trustee of the trust agrees to be bound in writing by the restrictions set forth herein, and provided further that any such transfer shall not involve a disposition for value, and shall be applicable to the stockholders only if all officers and directors are subject to the same restrictions. The underwriters in connection with such registration are intended third-party beneficiaries of this Section 9.07 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Section 9.07 or that are necessary to give further effect thereto.

Exhibit 5.1

NORTON ROSE FULBRIGHT

November 7, 2023

Norton Rose Fulbright US LLP
1301 McKinney, Suite 5100
Houston, Texas 77010-3095
United States

Tel +1 713 651 5151
Fax +1 713 651 5246
nortonrosefulbright.com

FibroBiologics Inc.
455 E. Medical Center Blvd.
Suite 300
Houston, Texas 77598

Re: Registration Statement of FibroBiologics Inc. on Form S-1

Dear Sirs:

We have acted as counsel to FibroBiologics Inc. (the **Company**), a Delaware corporation, in connection with its filing of a registration statement on Form S-1 (the **Registration Statement**) filed by the Company under the Securities Act of 1933, as amended (the **Securities Act**), relating to the offer and resale of up to an aggregate of 4,791,367 shares of common stock of the Company (the **Shares**). We have been requested by the Company to render this opinion in connection with the filing of the Registration Statement.

As counsel, we have made such investigations and examined the originals, or duplicate, certified, conformed, telecopied or photostatic copies of such corporate records, agreements, documents and other instruments and have made such other investigations as we have considered necessary or relevant for the purposes of this opinion, including:

(a) the Registration Statement;

(b) the Amended & Restated Certificate of Incorporation and Bylaws of the Company; and

(c) a Certificate of Good Standing dated November 6, 2023 issued by the Secretary of State of Delaware.

With respect to the accuracy of factual matters material to this opinion, we have relied upon certificates or comparable documents and representations of public officials and of officers of the Company and have not performed any independent check or verification of such factual matters.

In giving this opinion, we have assumed the genuineness of all signatures, the legal capacity of natural persons, the authenticity of all documents submitted to us as originals, the conformity to authentic original documents of all documents submitted to us as duplicates, certified, conformed, telecopied or photostatic copies and the authenticity of the originals of such latter documents, and that all facts set forth in the certificates supplied by officers of the Company are complete, true and accurate as of the date hereof.

The opinion set forth below is limited to the laws of the State of Delaware and the federal laws of United States applicable therein, in each case in effect on the date hereof. Our opinion is rendered as of the date hereof, and we assume no obligation to advise you of changes in law or fact (or the effect thereof on the opinions expressed herein) that hereafter may come to our attention.

The opinion set forth below is subject to the following exceptions, limitations and qualifications: (i) the effect of bankruptcy, insolvency, reorganization, arrangement, moratorium, fraudulent conveyance, fraudulent transfer and other similar laws relating to or affecting the rights of creditors; (ii) the effect of general principles of equity (including, without limitation, concepts of materiality, reasonableness, good faith and fair dealing and the possible unavailability of specific performance, injunctive relief and other equitable remedies), regardless of whether considered in a proceeding at law or in equity, (iii) the effect of public policy considerations that may limit the rights of the parties to obtain further remedies, (iv) we express no opinion with respect to the enforceability of provisions relating to choice of law, choice of venue, jurisdiction or waivers of jury trial, and (v) we express no opinion with respect to the enforceability of any waiver of any usury defense.

Based on the foregoing, and subject to the assumptions, limitations and qualifications set forth herein, including the assumption that the Registration Statement and any required post-effective amendment(s) thereto required by applicable laws have become effective under the Securities Act, we are of the opinion that the Shares have been authorized and validly issued and are fully paid and non-assessable.

We hereby consent to the filing of this opinion with the Commission as an exhibit to the Registration Statement and to the use of our name therein. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the Rules and Regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Norton Rose Fulbright US LLP

Norton Rose Fulbright US LLP

INTELLECTUAL PROPERTY CROSS-LICENSE AGREEMENT

This **INTELLECTUAL PROPERTY CROSS-LICENSE AGREEMENT** (this ***"Agreement"***), dated as of May 17, 2021 (the "***Effective Date***"), is made between **SPINALCYTE LLC**, a Texas limited liability company (***"SpinalCyte"***) and **FIBROBIOLOGICS LLC**, a Texas limited liability company (***"FibroBiologics"***). FibroBiologics and SpinalCyte are each referred to individually as a ***"Party"*** and collectively as the ***"Parties."***.

WHEREAS, SpinalCyte owns 100% of the rights, title and interest in the SpinalCyte Licensed IP (as defined below);

WHEREAS, SpinalCyte desires to grant and FibroBiologics desires to accept an exclusive license to FibroBiologics to practice the SpinalCyte Licensed IP in a limited field of use;

WHEREAS, FibroBiologics owns 100% of the rights, title and interest in the FibroBiologics Licensed IP (as defined below); and

WHEREAS, FibroBiologics desires to grant and SpinalCyte desires to accept an exclusive license to SpinalCyte to practice the FibroBiologics Licensed IP in a limited field of use.

NOW THEREFORE, in consideration of the ongoing financial and other support provided by FibroBiologics to SpinalCyte and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, FibroBiologics and SpinalCyte hereby agree as follows:

ARTICLE 1
DEFINITIONS

1.1 ***"Affiliate"*** means, with respect to a Party, any Person that controls, is controlled by, or is under common control with such Party, where "control" means the possession, directly or indirectly, through one or more intermediaries, of the power to direct or cause the direction of the management or policies of a Person, whether through ownership of voting securities, controlling interests or similar arrangement.

1.2 ***"Exploit"*** means to make, have made, import, use, sell or offer for sale, including to research, develop, commercialize, register, manufacture, have manufactured, hold or keep (whether for disposal or otherwise), have used, export, transport, distribute, promote, market, sell, have sold, dispose of, copy, distribute, create derivative works of, publicly perform or publicly display.

1.3 ***"FibroBiologics Licensed Field of Use"*** means, collectively, the diagnosis, treatment, prevention and palliation of (a) spinal diseases, disorders or conditions, (b) cancer, (c) orthopedics diseases, disorders or conditions and (4) multiple sclerosis.

1.4 ***"FibroBiologics Licensed IP"*** means the intellectual property set forth and described in Schedule 1 to this Agreement.

1.5 ***"FibroBiologics Licensed Product(s)"*** means any product, process or service that incorporates, utilizes or is made with the use of the SpinalCyte Licensed IP.

1.6 ***"Licensed IP"*** means the FibroBiologics Licensed IP and the SpinalCyte Licensed IP, collectively.

1.7 ***"Licensee"*** means the Party receiving rights under a license grant pursuant to this Agreement. Depending on the context, Licensee may mean either or both of SpinalCyte and FibroBiologics.

1.8 ***"Patent Owner"*** means the owner of a patent within the Licensed IP. Depending on the context, Patent Owner may mean either or both of SpinalCyte and FibroBiologics.

1.9 ***"Person"*** means an individual, corporation, partnership, joint venture, limited liability company, governmental authority, unincorporated organization, trust, association or other entity.

1.10 ***"Prosecute and Maintain"*** means with regard to a patent, the preparing, filing, prosecuting and maintenance of such patent, as well as handling re-examinations and reissues with respect to such patent, together with the conduct of interferences, the defense of oppositions and other similar proceedings with respect to the particular patent. For clarification, Prosecute and Maintain does not include any other enforcement actions taken with respect to a patent.

1.11 **"SpinalCtye Licensed Field of Use"** means any and all fields of use other than the FibroBiologics Licensed Field of Use, and specifically includes (without limitation) Alzheimer's and other dementia related diseases, diabetes, cachexia, tissue regeneration, stroke, addiction, miscarriages, inflammatory bowel disease, transplant rejections, cerebral palsy, sclerosing cholangitis, Parkinson's disease, erectile dysfunction, allergy, asthma, concussive neurological damage, encephalopathy, blindness, aneurysms, ovarian failure, dysbiosis, cerebral hemorrhage, acute respiratory distress syndrome, COVID, pathological immune response, dental/periodontal, and alopecia.

1.12 ***"SpinalCyte Licensed IP"*** means the intellectual property set forth and described in Schedule 2 to this Agreement.

1.13 ***"SpinalCyte Licensed Product(s)"*** means any product, process or service that incorporates, utilizes or is made with the use of the FibroBiologics Licensed IP.

ARTICLE 2
LICENSE GRANTS

2.1 ***SpinalCyte License Grant to Fibrobiologics***. Subject to the terms and conditions of this Agreement, SpinalCyte hereby grants to FibroBiologics, and FibroBiologics hereby accepts, a worldwide, perpetual, irrevocable, fully paid up, royalty-free, exclusive, transferable, sub-

licensable license to the SpinalCyte Licensed IP, to Exploit Licensed Product(s) in the FibroBiologics Licensed Field of Use.

2.2 ***FibroBiologics License Grant to SpinalCyte***. Subject to the terms and conditions of this Agreement, FibroBiologics hereby grants to SpinalCyte, and SpinalCyte hereby accepts, a worldwide, perpetual, irrevocable, fully paid up, royalty-free, exclusive, transferable, sub-licensable license to the FibroBiologics Licensed IP, to Exploit Licensed Product(s) in the SpinalCyte Licensed Field of Use.

2.3 ***Exclusivity***. For the avoidance of doubt, the licenses in Section 2.1 and Section 2.2 are exclusive within their respective fields of use even as to the granting licensor.

2.4 ***No Implied Licenses***. Except as otherwise specifically set forth herein, only the licenses granted pursuant to the express terms of this Agreement shall be of any legal force and effect. No license or other intellectual property rights shall be created by implication in any patents, technology and/or proprietary information owned by a Party, even if such patents, technology, or proprietary information is necessary to exploit the Licensed IP.

ARTICLE 3
PATENT PROSECUTION AND MAINTENANCE; PATENT ENFORCEMENT

3.1 ***Patent Prosecution and Maintenance***. Each Party, as Patent Owner, shall diligently and in good faith Prosecute and Maintain any and all patent applications and patents owned by such Party that are included in the Licensed IP, at its own cost. If a Patent Owner decides not to: (i) prosecute certain patent applications within the Licensed IP to issuance or (ii) maintain any United States or foreign issued patent within the Licensed IP, the Patent Owner shall timely notify the Licensee of such patent right in writing thereof and upon written request by the Licensee, the Parties shall cooperate to transfer the ownership of such patent right to the Licensee, provided, that the Patent Owner shall retain an a worldwide, irrevocable, fully paid up, royalty-free, exclusive, transferable, sublicensable license to and under the transferred patent right to Exploit Licensed Products in its field of use. The preceding sentence shall not apply to any patent applications within the Licensed IP that will be abandoned for the pursuit of a utility application in the case of a provisional application, a divisional or continuation application in the case of any utility application, any national stage applications in the case of a patent cooperation treaty application, or countries not validated in the case of a European or other regional patent application.

3.2 ***Infringement Procedures***. During the term of this Agreement, each Party shall promptly inform the other of any suspected infringement, misuse, misappropriation, theft or breach of confidence of other proprietary rights in the Licensed IP by a third party (collectively ***"Third Party Activities"***), and with respect to such activities as are suspected. For Third Party Activities involving a Licensee's exclusive field of use, the Licensee shall have the first right, but not the obligation, to institute an action or proceeding against Third Party Activities and defend any declaratory judgment action relating thereto. The Patent Owner shall have the right, but not the obligation, to join any such suit, legal action or proceeding that is initiated by the Licensee,

at the Licensee's cost. The Patent Owner shall, where necessary, furnish a power of attorney solely for such purpose, or be named as a necessary party to, such action, at the Licensee's cost. If the Licensee fails to bring such an action or proceeding within the earlier of (a) a period of three (3) months after receiving notice or otherwise having knowledge of such Third Party Activities, or (b) thirty (30) days before the time limit, if any, set forth in the applicable law or regulations for the filing of or response to such suit action or proceeding, whichever comes first, then the Patent Owner shall have the right, but not the obligation, to prosecute the same solely with respect to the activities at its own expense. The Party not instituting the action or the proceeding (the ***"Non-Instituting Party"***) will reasonably cooperate with the Party instituting the action or the proceeding (the ***"Instituting Party"***) in such action. In addition, notwithstanding anything to the contrary contained herein, if the Non-Instituting Party cooperates in such action, such cooperation shall be at the Instituting Party's sole expense. Should either the Patent Owner or the Licensee commence action under the provisions of this Section 3.2 and thereafter elect to abandon the same, it shall give timely notice to the other Party who may, if it so desires, continue prosecution of such action or proceeding. All recoveries, whether by judgment, award, decree or settlement, from infringement or misuse of Licensed IP under this Section 3.2 shall be apportioned as follows: (a) the Instituting Party shall first recover an amount equal the costs and expenses incurred by such Party directly related to the prosecution of such action or proceeding, (b) the Non-Instituting Party shall then recover costs and expenses incurred by such Party, if any, directly related to its cooperation in the prosecution of such action or proceeding and (c) the remainder shall be shared by the Parties, with the Party bringing the action allocated eighty percent (80%) and the Party cooperating in such action allocated twenty percent (20%) of such amounts, such amount not to exceed $1,000,000.

3.3 **Consent to Settle.** Neither Party shall settle any action covered by Section 3.2 without first obtaining the consent of the other Party, which consent will not be unreasonably withheld.

3.4 **Defense of Infringement Claims.** If any third party asserts a claim, demand, action, suit or proceeding against a Licensee (or any of its sublicensees), alleging that any Licensed Product or that the use or practice of the Licensed IP infringes, misappropriates or violates the intellectual property rights of any Person (any such claim, demand, action, suit or proceeding being referred to as and ***"Infringement Claim"***), the Licensee shall promptly notify the Patent Owner in writing specifying the facts, to the extent known, in reasonable detail. In the case of any such Infringement Claim, the Licensee shall assume control of the defense and shall have the exclusive right to settle any Infringement Claim against the Licensee without the consent of the Patent Owner; provided, however, if such settlement requires any payment from the Patent Owner or decreases the Patent Owner's rights under this Agreement, the Licensee shall be required to obtain the Patent Owner's consent, which consent will not be unreasonably withheld.

ARTICLE 4
TERM

4.1 ***Term.*** This Agreement shall commence upon the Effective Date and expire, on a country-by-country basis, on the date of expiration of the last valid claim of the patent rights in the Licensed IP.

ARTICLE 5
INDEMNIFICATION

5.1 ***FibroBiologics Indemnity.*** FibroBiologics shall indemnify, defend, and hold harmless SpinalCyte, its Affiliates, and their respective shareholders, members, managers, directors, officers, employees, personnel and agents (collectively, the ***"SpinalCyte Indemnified Parties"*** and each an ***"SpinalCyte Indemnified Party"***) from and against all claims, actions, causes of action or demands, (including liabilities, costs, expenses, reasonable attorneys' fees, damages and losses resulting from the foregoing) (collectively, ***"Claims"***) brought by or on behalf of a third party arising out of or in connection with: (a) any violation of applicable law by FibroBiologics, its Affiliates or its sublicensees; (b) any claim that a FibroBiologics Licensed Product or that the use of the SpinalCyte Licensed IP by Fibrobiologics, its Affiliates or its sublicensees infringes, misappropriates or otherwise violates any intellectual property rights of any third party; and (c) FibroBiologics's, its Affiliates or its sublicensses gross negligence, willful misconduct or fraudulent conduct. FibroBiologics shall not be responsible to, nor shall it indemnify any SpinalCyte Indemnified Party for any Claims to the extent arising from any negligent act or omission or willful misconduct of an SpinalCyte Indemnified Party and its shareholders, members, managers, directors, officers, employees, personnel and agents, and those for whom in law SpinalCyte is responsible for. This Section 5.1 shall survive any termination or expiration of this Agreement.

5.2 ***SpinalCyte Indemnity.*** SpinalCyte shall indemnify, defend, and hold harmless FibroBiologics, its Affiliates, and their respective shareholders, members, managers, directors, officers, employees, personnel and agents (collectively, the ***"FibroBiologics Indemnified Parties"*** and each a ***"FibroBiologics Indemnified Party"***) from and against any Claims brought by or on behalf of a third party arising out of or in connection with: (a) any violation of applicable law by SpinalCyte, its Affiliates or its sublicensees; (b) any claim that a SpinalCyte Licensed Product or that the use of the FibroBiologics Licensed IP by SpinalCyte, its Affiliates or its sublicensees infringes, misappropriates or otherwise violates the intellectual property rights of any third party; (c) SpinalCyte's, its Affiliates' or its sublicensees gross negligence, willful misconduct or fraudulent conduct. SpinalCyte shall not be responsible to, nor shall it indemnify a FibroBiologics Indemnified Party for any Claims to the extent arising from any negligent act or omission or willful misconduct of FibroBiologics, its Affiliates, and those for whom in law FibroBiologics is responsible for. This Section 5.2 shall survive any termination or expiration of this Agreement.

5.3 ***Procedure.*** The indemnified Party shall promptly notify the indemnifying Party in writing of any Claim for which it believes it is entitled to indemnification hereunder. Failure or delay in providing such notice shall not relieve the indemnifying Party of its indemnification obligations, except to the extent the indemnifying Party demonstrates that the defense or

settlement of the Claim has been prejudiced thereby. Subject to provisions below in this Section 5.3, the indemnifying Party shall have the right to control the defense and settlement of any Claim, or may at any time tender control of the defense or settlement of such Claim to the indemnified Party. The indemnified Party shall have the right to approve of counsel retained by the indemnifying Party for such Claim (such approval not to be unreasonably withheld, conditioned or delayed), and may, at its own cost, elect to participate in the defense or settlement of any Claim with counsel of its choice. No compromise or settlement other than solely for an amount of money may be committed to by the indemnifying Party without the indemnified Party's prior written approval (which shall not be unreasonably withheld, conditioned or delayed).

ARTICLE 6
LIMITATION OF LIABILITY

6.1 ***WAIVER OF CONSEQUENTIAL DAMAGES***. EXCEPT WITH RESPECT TO EACH PARTY'S INDEMNIFICATION OBLIGATIONS PURSUANT TO ARTICLE 5, FRAUD OR INTENTIONAL MISCONDUCT, IN NO EVENT SHALL EITHER PARTY, ITS DIRECT OR INDIRECT SUBSIDIARIES, AFFILIATES, DIRECTORS, OFFICERS, AGENTS, EMPLOYEES OR REPRESENTATIVES BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE, EXEMPLARY OR CONSEQUENTIAL DAMAGES OF ANY KIND, NOR FOR ANY LOST PROFITS OR REVENUES, IN CONNECTION WITH OR ARISING OUT OF THIS AGREEMENT.

6.2 ***LIMITATION OF LIABILITY***. EXCEPT FOR EACH PARTY'S INDEMNIFICATION OBLIGATIONS PURSUANT TO ARTICLE 5, OR GROSS NEGLIGENCE OR FRAUD OR INTENTIONAL MISCONDUCT, THE MAXIMUM AGGREGATE LIABILITY OF EITHER PARTY TO THE OTHER, FOR ANY REASON AND UPON ANY CAUSE OF ACTION ARISING OUT OF OR RELATING TO THIS AGREEMENT SHALL BE LIMITED TO AN AMOUNT NOT TO EXCEED $1,000,000, EVEN IF A PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR SUCH DAMAGES ARE REASONABLY FORESEEABLE. THE FOREGOING LIMITATIONS SHALL APPLY REGARDLESS OF THE CAUSE OR FORM OF ACTION, WHETHER BASED IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY, WARRANTY OR OTHERWISE AND SHALL NEVER BE DEEMED TO FAIL IN THEIR ESSENTIAL PURPOSE.

ARTICLE 7
CONFIDENTIALITY

7.1 ***Definition***. For purposes of this Agreement, ***"Confidential Information"*** of a Party means any non-public information or materials belonging to, concerning or in the possession or control of such Party or its Affiliates (the ***"Disclosing Party"***) that is furnished, disclosed or otherwise made available (directly or indirectly) to the other Party (or Persons acting on such other Party's behalf) (the ***"Receiving Party"***) in connection with this Agreement and which is either marked or identified as confidential or proprietary or is of a type that a reasonable person would recognize it to be confidential or proprietary.

7.2 ***Confidentiality Obligations.*** During the term and for a period of two (2) years thereafter, or in the event an item is a trade secret, so long as the item remains a trade secret, the Receiving Party shall: (a) hold the Confidential Information in strict confidence and avoid the disclosure thereof to any third party by using the same degree of care as it uses to avoid the unauthorized use or disclosure of its own Confidential Information of a similar nature, but not less than reasonable care; and (b) not use the Confidential Information for any purpose except as contemplated under this Agreement. Should a Party become possessed of a trade secret of a Disclosing Party under the terms of this Agreement, the Receiving Party shall not, during the term and thereafter, use or disclose such trade secret. The Receiving Party shall restrict the possession and use of Confidential Information to its personnel who have a need to know and are bound by confidentiality obligations no less stringent than those contained herein. The Receiving Party may disclose Confidential Information as required by applicable law, provided the Receiving Party discloses only such information as is required by applicable law and, if permitted by applicable law, uses reasonable efforts to notify the Disclosing Party of such disclosure in sufficient time to allow the Disclosing Party to seek a protective order or similar confidential treatment at Disclosing Party's expense. The Receiving Party shall promptly notify the Disclosing Party of any facts known to the Receiving Party regarding any unauthorized disclosure or use of Confidential Information. Each Party acknowledges that its breach of the obligations set forth in this Section 7.2 may cause irreparable harm for which the other Party shall be entitled to seek injunctive or other equitable relief. All Confidential Information shall remain the exclusive property of the Disclosing Party.

7.3 ***Limitations.*** Confidential Information shall not include any information that: (a) was demonstrably known by the Receiving Party before disclosure by the Disclosing Party, (b) becomes generally publicly known or otherwise known to the Receiving Party after such disclosure, other than by breach of a confidentiality obligation; or (c) is independently developed by the Receiving Party by persons without access to such information.

7.4 ***Return or Destruction of Confidential Information.*** Upon termination of this Agreement for any reason or upon the other Party's written request, each Party shall promptly: (a) return or destroy, at the other Party's direction, all material embodying the Confidential Information of the other Party in such Party's possession, custody or control; and (b) if requested by the other Party, deliver an affidavit certifying that such Party has complied with the obligations set forth herein.

7.5 ***Residual Rights.*** Each Party acknowledges and agrees that the other Party, its Affiliates and their respective employees and agents shall be free to use and employ their general skills, ideas, concepts, know-how and expertise, and to use, disclose, and employ any generalized ideas, concepts, know-how, methods, techniques or skills gained or learned during the course of any activities performed hereunder, subject to its obligations respecting the other Party's Confidential Information pursuant to this Article 7.

ARTICLE 8
REPRESENTATIONS AND WARRANTIES.

8.1 ***Mutual Representations and Warranties.*** Each Party represents and warrants to the other that they each have: (a) all requisite legal and corporate power to execute and deliver this Agreement; (b) taken all corporate action necessary for the authorization, execution and delivery of this Agreement; (c) no agreement or understanding with any third party that interferes with or will interfere with the performance of their respective obligations under this Agreement; (d) obtained and shall maintain all rights, approvals and consents necessary to perform their respective obligations under this Agreement; (e) taken all action required or necessary to make such agreements legal, valid and binding obligations upon them; and (f) it has the right to grant the licenses to the other which are granted in this Agreement.

8.2 ***Disclaimer.*** NEITHER PARTY MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND, WHETHER EXPRESS OR IMPLIED, EXCEPT FOR THE REPRESENTATIONS AND WARRANTIES EXPRESSLY SET FORTH IN THIS SECTION 8.1, AND EACH PARTY EXPRESSLY DISCLAIMS ANY IMPLIED OR STATUTORY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUALITY, TITLE OR ANY REPRESENTATION OR WARRANTY ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING OR USAGE OF TRADE.

ARTICLE 9
ADDITIONAL PROVISIONS

9.1 ***Further Assurances.*** Each Party covenants and agrees to execute and deliver or cause to be executed and delivered to the other Parties such instruments or further assurances as may, in the reasonable opinion of such other Party, be necessary or desirable to give effect to the provisions of this Agreement.

9.2 ***Notices.*** All notices required or permitted under this Agreement shall be in writing and delivered via overnight mail or overnight courier service, signature proof of receipt required. Notices shall be directed to the addresses set forth below and shall be deemed effective upon receipt. Either Party may change its address for notices from time to time by providing written notice to the other Party.

If to SpinalCyte:

President of SpinalCyte
PO Box 891146
Houston, Texas 77289

If to FibroBiologics:

President of SpinalCyte
PO Box 891146
Houston, Texas 77289

9.3 ***Assignment***. The Agreement shall be binding on the Parties and their successors and permitted assigns. Neither Party shall assign, transfer or delegate any of its rights, duties or obligations under this Agreement, or any part thereof, whether by operation of law or otherwise, without the prior written consent of the other Party, provided that either Party shall be entitled to assign or transfer this Agreement in connection with the sale or acquisition of its business to which this Agreement relates, whether by merger, sale of stock, sale of assets or otherwise. Any assignment in violation of this paragraph shall be void ab initio.

9.4 ***Publicity; Press Releases***. Neither Party shall, without the prior written consent of the other Party which shall not be unreasonably withheld, issue any press releases or make any public statements concerning the existence of or activities under this Agreement or disclose the terms of this Agreement to any third party other than its legal, financial and other advisors under a duty of confidentiality. The Parties will mutually agree upon the content and timing of any press release announcing the execution of this Agreement or otherwise relating to the terms of this Agreement.

9.5 ***Modifications; Waiver.*** This Agreement may be modified only pursuant to a writing executed by authorized representatives of both Parties. The Parties expressly disclaim the right to claim the enforceability of any oral modifications to this Agreement or any amendments based on course of dealing, waiver, reliance, estoppel or other similar legal theory. No delay or omission by either Party to exercise any right occurring upon any non-compliance or default of the other Party with respect to any of the terms of this Agreement shall impair any such right or be construed to be a waiver thereof.

9.6 ***No Third Party Beneficiaries***. This Agreement is for the sole benefit of the Parties and their successors and permitted assigns and nothing herein, express or implied, shall give or be construed to give any Person other than the Parties any legal or equitable rights hereunder.

9.7 ***Severability***. In the event any provision of this Agreement is determined by a court of competent jurisdiction to be invalid or unenforceable under applicable law, such provision shall be amended and interpreted to accomplish the objectives of such provision to the greatest extent possible under applicable law, and the remaining provisions of this Agreement shall continue in full force and effect.

9.8 ***Arbitration***. The Parties agree that any and all disputes, claims or controversies arising out of or related to this Agreement, including any claims under any statute or regulation (***"Disputes"***), shall be submitted first to non-binding mediation. If the Disputes are not resolved through mediation, then, upon the election of either Party, the Disputes shall be submitted for

binding arbitration. Unless the Parties agree otherwise, any mediation and arbitration shall take place in the State of Texas, Harris County, and shall be administered by, and pursuant to the rules of, the American Arbitration Association (***"AAA"***).

9.9 ***Governing Law; Jurisdiction.*** This Agreement shall be governed by and construed in accordance with the laws of New York, without reference to the principles of conflicts of law that would apply the substantive laws of another jurisdiction. In the event a court or other tribunal of competent jurisdiction rules that Section 9.9 or any provision therein is invalid or otherwise unenforceable, each Party hereby submits to the exclusive jurisdiction of the state and federal courts located in [Harris County, Texas] over any Disputes arising out of or relating to this Agreement and waives the right to object to such venue or make a claim of *forum non conveniens*. Notwithstanding the foregoing, nothing herein shall prevent either Party from commencing an action for the purpose of seeking immediate injunctive relief in the appropriate jurisdiction.

9.10 ***Survival.*** Any provision of this Agreement that contemplates performance or observance subsequent to any expiration or termination of this Agreement, or which is otherwise necessary to interpret the respective rights and obligations of the Parties hereunder, shall survive any expiration or termination of this Agreement and continue in full force and effect, including without limitation Article 1 (General), Article 5 (Indemnification), Article 6 (Limitation of Liability), Article 7 (Confidentiality), and Article 9 (Additional Provisions).

9.11 ***Headings; Construction.*** The headings of the various sections in this Agreement are for convenience of reference only and shall not affect the construction or interpretation of this Agreement or this Agreement. The Parties acknowledge and agree that any principle of construction or rule of law that provides that an agreement shall be construed against the drafter of the agreement in the event of any inconsistency or ambiguity in such agreement shall not apply to the terms and conditions of this Agreement.

9.12 ***Entire Agreement.*** This Agreement, together with the Schedules attached hereto, sets forth the entire and exclusive agreement between the Parties as to the subject matter hereof and supersedes all prior and contemporaneous understandings, negotiations and agreements, written or oral, between the Parties.

9.13 ***Counterparts.*** This Agreement may be executed in several counterparts, including by e-mail and with electronic signatures, each of which will be deemed an original, and all of which taken together shall constitute one single agreement between the Parties with the same effect as if all the signatures were upon the same instrument. An electronic signature shall be as legally effective as an original signature.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Parties have duly executed and delivered this Agreement as of the date first above written.

FIBROBIOLOGICS LLC

By: _____

Name: PETE OHEERON

Title: MGR / CEO

SPINALCYTE LLC

By: _____

Name: PETE OHEERON

Title: MGR/CEO

Schedule 1

FibroBiologics Licensed IP

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0002AU.D1	Australia	2011253785	12/2/2011	2011253785	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002AU.D2	Australia	2013257540	11/19/2013	2013257540	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002AU.D3	Australia	2015202319	5/6/2015	2015202319	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002AU.D4	Australia	2017206234	7/20/2017	2017206234	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002AU.D5	Australia	2018220112	8/23/2018	2018220112	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002CN.D1	China	201110261353.3	8/9/2011	ZL 201110261353.3	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0002JP.D1	Japan	2012-241637	11/1/2012	6151006	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002JP.D2	Japan	2015-080729	4/10/2015		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002JP.D3	Japan	2017-184649	9/26/2017	6676022	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002JP.D3D1	Japan	2020-000328	1/6/2020		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002JP.D4	Japan	2017-184650	9/26/2017		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.C1	United States of America	13/185472	7/18/2011	9138460	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D1	United States of America	12/775720	5/7/2010	8728495	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
					BIOREACTOR
AMTK.P0002US.D2	United States of America	12/775736	5/7/2010	9545432	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D2C1	United States of America	15/371994	12/7/2016	10052410	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D2C2	United States of America	16/038915	7/18/2018	10806824	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D2C3	United States of America	16/865926	5/4/2020		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D3	United States of America	12/775753	5/7/2010	8298560	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D4	United States of America	12/775765	5/7/2010	9320776	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0002US.D5	United States of America	12/775771	5/7/2010	9533024	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0003CN	China	201280063195.3	6/20/2014		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003CN.D1	China	201711263200.6	12/5/2017		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003ECH	Switzerland	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003ECH.D1	Switzerland	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EDE	Germany	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EDE.D1	Germany	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EES	Spain	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EES.D1	Spain	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0003EFR	France	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EFR.D1	France	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EGB	United Kingdom	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EGB.D1	United Kingdom	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EHK	Hong Kong	14111200.7	11/4/2014	HK1197832	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EHK.D1	Hong Kong	18111368.1	9/5/2018	HK1252036	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EIE.D1	Ireland	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EIT	Italy	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EIT.D1	Italy	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EP	European Patent	12846950.9	5/21/2014	2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
	Office				DISEASE
AMTK.P0003EP.D1	European Patent Office	17192969.8	9/25/2017	3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EP.D2	European Patent Office	20186304.0	7/16/2020		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003IN	India	3911/DELNP/2014	5/15/2014		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003US	United States of America	14/357558	5/9/2014		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003US.D1	United States of America	15/957741	4/19/2018		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003US.P1	United States of America	61/557479	11/9/2011		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003US.P2	United States of America	61/691391	8/21/2012		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003WO	Patent Cooperation Treaty	PCT/US2012/064101	11/8/2012		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0004AU	Australia	2013299505	2/2/2015	2013299505	GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0004AU.D1	Australia	2017201708	3/13/2017	2017201708	GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004CA	Canada	2881126	2/4/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004CHK.D1	Hong Kong	42020009561.0	6/18/2020		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004CN	China	201380047210.X	3/11/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004CN.D1	China	201911186070.X	11/28/2019		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004EHK	Hong Kong	15110635.3	10/28/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004EP	European Patent Office	13827360.2	3/4/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004IN	India	1321/DELNP/2015	2/18/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004JP	Japan	2015-526709	2/9/2015	6456826	GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004JP.D1	Japan	2018-032337	2/26/2018	6574502	GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004JP.D2	Japan	2019-149332	8/16/2019		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004US	United States of America	13/962241	8/8/2013		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0004US.P1	United States of America	61/681731	8/10/2012		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004WO	Patent Cooperation Treaty	PCT/US2013/054158	8/8/2013		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0005AU	Australia	2014281818	12/7/2015	2014281818	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005AU.D1	Australia	2019253856	10/23/2019		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005CA	Canada	2915249	12/11/2015		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005CN	China	201480039060.2	1/8/2016		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005ECH	Switzerland	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EDE	Germany	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EES	Spain	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EFR	France	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EGB	United Kingdom	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EHK	Hong Kong	16110257.9	8/29/2016		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0005EIE	Ireland	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EIT	Italy	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EP	European Patent Office	14813201.2	1/6/2016	3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005IN	India	201617001725	1/18/2016		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005JP	Japan	2016-521475	12/18/2015		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005JP.D1	Japan	2020-119475	7/10/2020		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005US	United States of America	14/304247	6/13/2014	10206954	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005US.C1	United States of America	16/244333	1/10/2019		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005US.P1	United States of America	61/836975	6/19/2013		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005WO	Patent Cooperation Treaty	PCT/US2014/042322	6/13/2014		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0006AU	Australia	2014317861	3/8/2016	2014317861	GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0006AU.D1	Australia	2019268095	11/20/2019		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006CA	Canada	2923857	3/9/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006CN	China	201480057130.7	4/18/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006EHK	Hong Kong	16112454.6	10/28/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006EP	European Patent Office	14841529.2	4/5/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006IN	India	201617011955	4/5/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006JP	Japan	2016-542044	3/9/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006JP.D1	Japan	2020-033592	2/28/2020		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0006US	United States of America	14/917560	3/8/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006US.P1	United States of America	61/875509	9/9/2013		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006WO	Patent Cooperation Treaty	PCT/US2014/054804	9/9/2014		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007AU	Australia	2017207445	7/3/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007CA	Canada	3011306	7/11/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007CN	China	201780011692.1	8/16/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007EHK	Hong Kong	18115243.3	11/28/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0007EP	European Patent Office	17739050.7	7/12/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007IN	India	201817025735	7/10/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007JP	Japan	2018-536724	7/13/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007US	United States of America	16/068096	7/3/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007US.P1	United States of America	62/278635	1/14/2016		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007US.P2	United States of America	62/413587	10/27/2016		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007WO	Patent Cooperation Treaty	PCT/US2017/013449	1/13/2017		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
					CELLS
AMTK.P0008CA.D1	Canada	2925550	3/30/2016	2925550	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008CA.D2	Canada	3019254	10/1/2018	3019254	USE OF CHONDROCYTE-LIKE CELLS TO TREAT A JOINT IN NEED OF REPAIR
AMTK.P0008ECH	Switzerland	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008ECH.D1	Switzerland	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EDE	Germany	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EDE.D1	Germany	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0008EES	Spain	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EES.D1	Spain	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EFR	France	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EFR.D1	France	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EGB	United Kingdom	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EGB.D1	United Kingdom	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EHK.D1	Hong Kong	17108880.7	9/4/2017	HK1236375	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
					BIOREACTOR
AMTK.P0008EIT	Italy	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EIT.D1	Italy	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EP.D1	European Patent Office	16195838.4	10/26/2016	3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0017EP	European Patent Office	19795975.2	11/23/2020		FIBROBLAST DELIVERY OF TUMOR INHIBITORY AGENTS
AMTK.P0017US	United States of America	17/052830	11/4/2020		FIBROBLAST DELIVERY OF TUMOR INHIBITORY AGENTS
AMTK.P0017US.P1	United States of America	62/666786	5/4/2018		FIBROBLAST DELIVERY OF TUMOR INHIBITORY AGENTS
AMTK.P0017WO	Patent Cooperation Treaty	PCT/US2019/030585	5/3/2019		FIBROBLAST DELIVERY OF TUMOR INHIBITORY AGENTS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0018EP	European Patent Office	19795797.0	11/23/2020		DE-DIFFERENTIATED FIBROBLAST-CONDITIONED MEDIA FOR STIMULATION OF DISC REGENERATION
AMTK.P0018US	United States of America	17/052841	11/4/2020		DE-DIFFERENTIATED FIBROBLAST-CONDITIONED MEDIA FOR STIMULATION OF DISC REGENERATION
AMTK.P0018US.P1	United States of America	62/666777	5/4/2018		DE-DIFFERENTIATED FIBROBLAST-CONDITIONED MEDIA FOR STIMULATION OF DISC REGENERATION
AMTK.P0018WO	Patent Cooperation Treaty	PCT/US2019/030570	5/3/2019		DE-DIFFERENTIATED FIBROBLAST-CONDITIONED MEDIA FOR STIMULATION OF DISC REGENERATION
AMTK.P0019EHK	Hong Kong				INTRADISCAL T-REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0019EP	European Patent Office	19796226.9	11/24/2020		INTRADISCAL T-REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0019US	United States of America	17/052845	11/4/2020		INTRADISCAL T-REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0019US.P1	United States of America	62/666807	5/4/2018		INTRADISCAL T REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0019WO	Patent Cooperation Treaty	PCT/US2019/030564	5/3/2019		INTRADISCAL T-REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0020EP	European Patent Office	19796689.8	11/24/2020		ENHANCEMENT OF FIBROBLAST PLASTICITY FOR TREATMENT OF DISC DEGENERATION
AMTK.P0020US	United States of America	17/052854	11/4/2020		ENHANCEMENT OF FIBROBLAST PLASTICITY FOR TREATMENT OF DISC DEGENERATION
AMTK.P0020US.P1	United States of America	62/666816	5/4/2018		ENHANCEMENT OF FIBROBLAST PLASTICITY FOR TREATMENT OF DISC DEGENERATION
AMTK.P0020WO	Patent Cooperation Treaty	PCT/US2019/030577	5/3/2019		ENHANCEMENT OF FIBROBLAST PLASTICITY FOR TREATMENT OF DISC DEGENERATION

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0025AU	Australia	2019332928	3/11/2021		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025CA	Canada	3111213	2/26/2021		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025EP	European Patent Office	19853816.7	3/24/2021		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025US	United States of America	17/271529	2/25/2021		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025US.P1	United States of America	62/723105	8/27/2018		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025US.P2	United States of America	62/820636	3/19/2019		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025WO	Patent Cooperation Treaty	PCT/US2019/048311	8/27/2019		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0033US.P1	United States of America	62/793545	1/17/2019		FIBROBLASTS AND MACROVESICLES THEREOF FOR REDUCTION OF TOXICITY ASSOCIATED WITH CANCER INNUMOTHERAPY
AMTK.P0033WO	Patent Cooperation Treaty	PCT/US2020/014018	1/17/2020		FIBROBLASTS AND MICROVESICLES THEREOF FOR REDUCTION OF TOXICITY ASSOCIATED WITH CANCER INNUMOTHERAPY
AMTK.P0039US.P1	United States of America	62/839716	4/28/2019		FIBROBLAST CELL THERAPY FOR TREATMENT OF OSTEOPOROSIS
AMTK.P0039WO	Patent Cooperation Treaty	PCT/US2020/030063	4/27/2020		FIBROBLAST CELL THERAPY FOR TREATMENT OF OSTEOPOROSIS
AMTK.P0041US.P1	United States of America	62/929828	11/2/2019		FIBROBLAST-DERIVED UNIVERSAL IMMUNOLOGICAL COMPOSITION
AMTK.P0041WO	Patent Cooperation Treaty	PCT/US2020/058492	11/2/2020		FIBROBLAST-DERIVED UNIVERSAL IMMUNOLOGICAL COMPOSITION

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0042US	United States of America	17/022897	9/16/2020		TREATMENT OF DISC DEGENERATIVE DISEASE AND STIMULATION OF PROTEOGLYCAN SYNTHESIS BY FIBROBLAST CONDITIONED MEDIA AND FORMULATIONS THEREOF
AMTK.P0042US.P1	United States of America	62/901164	9/16/2019		TREATMENT OF DISC DEGENERATIVE DISEASE AND STIMULATION OF PROTEOGLYCAN SYNTHESIS BY FIBROBLAST CONDITIONED MEDIA AND FORMULATIONS THEREOF
AMTK.P0042WO	Patent Cooperation Treaty	PCT/US2020/051036	9/16/2020		TREATMENT OF DISC DEGENERATIVE DISEASE AND STIMULATION OF PROTEOGLYCAN SYNTHESIS BY FIBROBLAST CONDITIONED MEDIA AND FORMULATIONS THEREOF
AMTK.P0044US.P1	United States of America	62/929830	11/2/2019		INTRATUMORAL ADMINISTRATION OF IMMUNE CELLULAR THERAPEUTICS
AMTK.P0044WO	Patent Cooperation Treaty	PCT/US2020/058497	11/2/2020		INTRATUMORAL ADMINISTRATION OF IMMUNE CELLULAR THERAPEUTICS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0045US.P1	United States of America				FIBROBLAST DELIVERY OF HYPERACUTE REJECTION INDUCING PAYLOAD TO CANCER CELLS
AMTK.P0048US.P1	United States of America	62/953841	12/26/2019		AUGMENTATION OF FIBROBLAST MEDIATED REGENERATION OF INTRAVERTEBRAL DISCS
AMTK.P0048WO	Patent Cooperation Treaty	PCT/US2020/067225	12/28/2020		AUGMENTATION OF FIBROBLAST MEDIATED REGENERATION OF INTRAVERTEBRAL DISCS
AMTK.P0054US.P1	United States of America	62/914523	10/13/2019		CANNABIDIOL ADJUVANT THERAPY FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0054WO	Patent Cooperation Treaty	PCT/US2020/055313	10/13/2020		CANNABIDIOL ADJUVANT THERAPY FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0055US	United States of America	16887720	5/29/2020		CONCURRENT ACTIVATION OF REGENERATIVE AND TOLEROGENIC PROCESSES BY FIBROBLAST-BASED COMPOSITIONS FOR THE TREATMENT OF MULTIPLE SCLEROSIS
AMTK.P0055US.P1	United States of America	62855010	5/31/2019		CONCURRENT ACTIVATION OF REGENERATIVE AND TOLEROGENIC

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
					PROCESSES BY FIBROBLAST-BASED COMPOSITIONS FOR THE TREATMENT OF MULTIPLE SCLEROSIS
AMTK.P0055WO	Patent Cooperation Treaty	PCT/US2020/035234	5/29/2020		CONCURRENT ACTIVATION OF REGENERATIVE AND TOLEROGENIC PROCESSES BY FIBROBLAST-BASED COMPOSITIONS FOR THE TREATMENT OF MULTIPLE SCLEROSIS
AMTK.P0061US.P1	United States of America	62/977604	2/17/2020		TELOMERE LENGTH MODULATION USING FIBROBLASTS AND DERIVITAVES THEREOF
AMTK.P0061WO	Patent Cooperation Treaty	PCT/US2021/018160	2/16/2021		TELOMERE LENGTH MODULATION USING FIBROBLASTS
AMTK.P0074US.P1	United States of America	63/017918	4/30/2020		IMMUNOTHERAPEUTIC METHODS AND COMPOSITIONS FOR TARGETING CANCER FIBROBLASTS
AMTK.P0074WO	Patent Cooperation Treaty	PCT/US2021/070496	4/30/2021		IMMUNOTHERAPEUTIC METHODS AND COMPOSITIONS FOR TARGETING CANCER FIBROBLASTS
AMTK.P0077US.P1	United States of America		Closed duplicate case		CANCER FIBROBLAST SPECIFIC CANCER IMMUNOTHERAPY
P03351AU0	Australia	2007212085	7/29/2008	2007212085	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
					BIOREACTOR
P03351CA0	Canada	2641170	7/25/2008	2641170	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351CN0	China	200780004506.8	7/31/2008	ZL 200780004506.8	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351EP0	European Patent Office	07763383.2	9/2/2008	1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351HK0	Hong Kong	09104307.1	5/11/2009	HK1125406	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351IN0	India	6901/DELNP/2008	8/12/2008		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351JP0	Japan	2008-554464	8/6/2008	5269612	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
P03351US0	United States of America	60/771172	2/7/2006		METHOD FOR REPAIRING AN INTERVERTEBRAL DISC
P03351US1	United States of America	11/671082	2/5/2007	7850983	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351WO0	Patent Cooperation Treaty	PCT/US2007/061590	2/5/2007		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

[End of Schedule 1.]

Schedule 2

SpinalCyte Licensed IP

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0009AU	Australia	2018207541	7/16/2019		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0009CA	Canada	3049768	7/9/2019		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0009CN	China	201880013348.0	8/22/2019		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0009EHK	Hong Kong	62020004216.1	3/13/2020		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0009EP	European Patent Office	18738916.8	7/24/2019		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0009IN	India	201917032228	8/8/2019		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0009JP	Japan	2019-558339	7/10/2019		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0009US	United States of America	15/868420	1/11/2018		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0009US.C1	United States of America				METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0009US.P1	United States of America	62/445133	1/11/2017		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0009WO	Patent Cooperation Treaty	PCT/US2018/013357	1/11/2018		METHODS OF ENHANCING FIBROBLAST THERAPEUTIC ACTIVITY
AMTK.P0010AU	Australia	2018254498	9/17/2019		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES
AMTK.P0010CA	Canada	3058783	10/1/2019		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES
AMTK.P0010CHK	Hong Kong	62020007292.9	5/12/2020		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES
AMTK.P0010CN	China	201880025815.1	10/18/2019		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES
AMTK.P0010EP	European Patent Office	18787206.4	10/8/2019		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES
AMTK.P0010IN	India	201917042021	10/17/2019		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES
AMTK.P0010JP	Japan	2019-556899	10/18/2019		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES
AMTK.P0010US	United States of America	16/495371	9/18/2019		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0010US.P1	United States of America	62/487143	4/19/2017		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES
AMTK.P0010WO	Patent Cooperation Treaty	PCT/US2018/028358	4/19/2018		STIMULATION OF ANGIOGENESIS BY FIBROBLAST DERIVED EXOSOMES
AMTK.P0011AU	Australia	2018375151	5/20/2020		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0011CA	Canada	3083354	5/22/2020		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0011CHK	Hong Kong	62020021460.4	12/2/2020		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0011CN	China	201880086376.5	7/13/2020		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0011EP	European Patent Office	18884660.4	6/5/2020		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0011IN	India	202017027209	6/26/2020		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0011JP	Japan	2020-529293	5/28/2020		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0011US	United States of America	16/765060	5/18/2020		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0011US.P1	United States of America	62/591858	11/29/2017		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0011US.P2	United States of America				INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0011WO	Patent Cooperation Treaty	PCT/US2018/063001	11/29/2018		INTERACTION OF FIBROBLASTS AND IMMUNE CELLS FOR ACTIVATION AND USES THEREOF
AMTK.P0016AU	Australia	2018388979	6/22/2020		AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY
AMTK.P0016CA	Canada		6/16/2020		AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY
AMTK.P0016CHK	Hong Kong				AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY
AMTK.P0016CN	China	201880086500.8	7/14/2020		AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY
AMTK.P0016EP	European Patent Office	18892707.3	6/11/2020		AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY
AMTK.P0016IN	India	202017026981	6/25/2020		AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY
AMTK.P0016JP	Japan	2020-534217	6/19/2020		AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY
AMTK.P0016US	United States of America	16/770495	6/5/2020		AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0016US.P1	United States of America	62/608031	12/20/2017		AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY
AMTK.P0016WO	Patent Cooperation Treaty	PCT/US2018/065931	12/17/2018		AUGMENTATION OF FIBROBLAST REGENERATIVE ACTIVITY
AMTK.P0021CA	Canada	3099387	11/4/2020		PAIN REDUCING EFFECTS OF FIBROBLASTS AND THEREOF FOR TREATMENT OF PAIN
AMTK.P0021US	United States of America	17/052859	11/4/2020		PAIN REDUCING EFFECTS OF FIBROBLASTS AND TREATMENT OF PAIN
AMTK.P0021US.P1	United States of America	62/666828	5/4/2018		PAIN REDUCING EFFECTS OF FIBROBLASTS AND THEREOF FOR TREATMENT OF PAIN
AMTK.P0021WO	Patent Cooperation Treaty	PCT/US2019/030596	5/3/2019		PAIN REDUCING EFFECTS OF FIBROBLASTS AND THEREOF FOR TREATMENT OF PAIN
AMTK.P0022CA	Canada	3103823	12/14/2020		USE OF FIBROBLASTS AND/OR MODIFIED FIBROBLASTS FOR THREE DIMENSIONAL TISSUE PRINTING
AMTK.P0022EP	European Patent Office				USE OF FIBROBLASTS AND/OR MODIFIED FIBROBLASTS FOR THREE DIMENSIONAL TISSUE PRINTING
AMTK.P0022US	United States of America	17/251587	12/11/2020		USE OF FIBROBLASTS AND/OR MODIFIED FIBROBLASTS FOR THREE DIMENSIONAL TISSUE PRINTING

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0022US.P1	United States of America	62/684844	6/14/2018		USE OF FIBROBLASTS AND/OR MODIFIED FIBROBLASTS FOR THREE DIMENSIONAL TISSUE PRINTING
AMTK.P0022WO	Patent Cooperation Treaty	PCT/US2019/037310	6/14/2019		USE OF FIBROBLASTS AND/OR MODIFIED FIBROBLASTS FOR THREE DIMENSIONAL TISSUE PRINTING
AMTK.P0023AU	Australia				METHODS AND COMPOSITIONS FOR TREATMENT OF TYPE 1 DIABETES USING FIBROBLASTS AS FACILITATORS OF ISLET ENGRAFTMENT
AMTK.P0023CA	Canada				METHODS AND COMPOSITIONS FOR TREATMENT OF TYPE 1 DIABETES USING FIBROBLASTS AS FACILITATORS OF ISLET ENGRAFTMENT
AMTK.P0023EP	European Patent Office				METHODS AND COMPOSITIONS FOR TREATMENT OF TYPE 1 DIABETES USING FIBROBLASTS AS FACILITATORS OF ISLET ENGRAFTMENT
AMTK.P0023JP	Japan				METHODS AND COMPOSITIONS FOR TREATMENT OF TYPE 1 DIABETES USING FIBROBLASTS AS FACILITATORS OF ISLET ENGRAFTMENT

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0023US	United States of America	17/309176	5/3/2021		METHODS AND COMPOSITIONS FOR TREATMENT OF TYPE 1 DIABETES USING FIBROBLASTS AS FACILITATORS OF ISLET ENGRAFTMENT
AMTK.P0023US.P1	United States of America	62/755523	11/4/2018		METHODS AND COMPOSITIONS FOR TREATMENT OF TYPE 1 DIABETES USING FIBROBLASTS AS FACILITATORS OF ISLET ENGRAFTMENT
AMTK.P0023WO	Patent Cooperation Treaty	PCT/US2019/059666	11/4/2019		METHODS AND COMPOSITIONS FOR TREATMENT OF TYPE 1 DIABETES USING FIBROBLASTS AS FACILITATORS OF ISLET ENGRAFTMENT
AMTK.P0024AU	Australia				TREATMENT OF CACHEXIA USING FIBROBLAST CELLS AND PRODUCTS THEREOF
AMTK.P0024CA	Canada				TREATMENT OF CACHEXIA USING FIBROBLAST CELLS AND PRODUCTS THEREOF
AMTK.P0024EP	European Patent Office				TREATMENT OF CACHEXIA USING FIBROBLAST CELLS AND PRODUCTS THEREOF
AMTK.P0024JP	Japan				TREATMENT OF CACHEXIA USING FIBROBLAST CELLS AND PRODUCTS THEREOF
AMTK.P0024US	United States of America	17/309177	5/3/2021		TREATMENT OF CACHEXIA USING FIBROBLAST CELLS AND PRODUCTS THEREOF

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0024US.P1	United States of America	62/755542	11/4/2018		TREATMENT OF CACHEXIA USING FIBROBLAST CELLS AND PRODUCTS THEREOF
AMTK.P0024WO	Patent Cooperation Treaty	PCT/US2019/059678	11/4/2019		TREATMENT OF CACHEXIA USING FIBROBLAST CELLS AND PRODUCTS THEREOF
AMTK.P0026AU	Australia				REGENERATIVE ABSCOPAL EFFECTS
AMTK.P0026CA	Canada				REGENERATIVE ABSCOPAL EFFECTS
AMTK.P0026EP	European Patent Office	19881814.8			REGENERATIVE ABSCOPAL EFFECTS
AMTK.P0026JP	Japan				REGENERATIVE ABSCOPAL EFFECTS
AMTK.P0026US	United States of America	17/309207	5/6/2021		REGENERATIVE ABSCOPAL EFFECTS
AMTK.P0026US.P1	United States of America	62/757764	11/9/2018		REGENERATIVE ABSCOPAL EFFECTS
AMTK.P0026WO	Patent Cooperation Treaty	PCT/US2019/060397	11/8/2019		REGENERATIVE ABSCOPAL EFFECTS
AMTK.P0028AU	Australia				MEANS AND METHODS OF PREVENTING OR REVERSING AGING
AMTK.P0028CA	Canada				MEANS AND METHODS OF PREVENTING OR REVERSING AGING
AMTK.P0028EP	European Patent Office	19882270.2			MEANS AND METHODS OF PREVENTING OR REVERSING AGING
AMTK.P0028JP	Japan				MEANS AND METHODS OF PREVENTING OR REVERSING AGING
AMTK.P0028US	United States of America	17/309208	5/6/2021		MEANS AND METHODS OF PREVENTING OR REVERSING AGING
AMTK.P0028US.P1	United States of America	62/758240	11/9/2018		MEANS AND METHODS OF PREVENTING OR REVERSING AGING

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0028WO	Patent Cooperation Treaty	PCT/US2019/060446	11/8/2019		MEANS AND METHODS OF PREVENTING OR REVERSING AGING
AMTK.P0029US.P1	United States of America	62/791207	1/11/2019		FIBROBLAST REGENERATIVE CELLS
AMTK.P0029WO	Patent Cooperation Treaty	PCT/US2020/013315	1/13/2020		FIBROBLAST REGENERATIVE CELLS
AMTK.P0030US.P1	United States of America	62/839644	4/27/2019		SELECTION OF FIBROBLAST DONORS FOR OPTIMIZATION OF ALLOGENEIC FIBROBLAST MEDIATED REGENERATION
AMTK.P0030WO	Patent Cooperation Treaty	PCT/US2020/030041	4/27/2020		SELECTION OF FIBROBLAST DONORS FOR OPTIMIZATION OF ALLOGENEIC FIBROBLAST MEDIATED REGENERATION
AMTK.P0031US.P1	United States of America	62/780289	12/16/2018		THERAPEUTIC USES OF GENE EDITED FIBROBLASTS
AMTK.P0031WO	Patent Cooperation Treaty	PCT/US2019/066575	12/16/2019		THERAPEUTIC USES OF GENE EDITED FIBROBLASTS
AMTK.P0032AU	Australia				TREATMENT OF CEREBRAL HYPOXIA INCLUDING STROKE, CHRONIC TRAUMATIC ENCEPHALOPATHY, AND TRAUMATIC BRAIN INJURY
AMTK.P0032CA	Canada				TREATMENT OF CEREBRAL HYPOXIA INCLUDING STROKE, CHRONIC TRAUMATIC ENCEPHALOPATHY, AND TRAUMATIC BRAIN INJURY

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0032EP	European Patent Office				TREATMENT OF CEREBRAL HYPOXIA INCLUDING STROKE, CHRONIC TRAUMATIC ENCEPHALOPATHY, AND TRAUMATIC BRAIN INJURY
AMTK.P0032JP	Japan				TREATMENT OF CEREBRAL HYPOXIA INCLUDING STROKE, CHRONIC TRAUMATIC ENCEPHALOPATHY, AND TRAUMATIC BRAIN INJURY
AMTK.P0032US	United States of America	17/309178	5/3/2021		TREATMENT OF CEREBRAL HYPOXIA INCLUDING STROKE, CHRONIC TRAUMATIC ENCEPHALOPATHY, AND TRAUMATIC BRAIN INJURY
AMTK.P0032US.P1	United States of America	62/755553	11/4/2018		TREATMENT OF CEREBRAL HYPOXIA INCLUDING STROKE, CHRONIC TRAUMATIC ENCEPHALOPATHY, AND TRAUMATIC BRAIN INJURY
AMTK.P0032WO	Patent Cooperation Treaty	PCT/US2019/059683	11/4/2019		TREATMENT OF CEREBRAL HYPOXIA INCLUDING STROKE, CHRONIC TRAUMATIC ENCEPHALOPATHY, AND TRAUMATIC BRAIN INJURY
AMTK.P0034US	United States of America	16/822746	3/18/2020		TREATMENT OF OPIOID ADDICTION USING FIBROBLASTS AND PRODUCTS THEREOF
AMTK.P0034US.P1	United States of America	62/820721	3/19/2019		TREATMENT OF OPIOID ADDICTION USING FIBROBLASTS AND PRODUCTS THEREOF

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0034WO	Patent Cooperation Treaty	PCT/US2020/023332	3/18/2020		TREATMENT OF OPIOID ADDICTION USING FIBROBLASTS AND PRODUCTS THEREOF
AMTK.P0035US	United States of America	16/913860	6/26/2020		ADMINISTRATION OF FIBROBLASTS AND DERIVATIVES THEREOF FOR TREATMENT OF TYPE 2 DIABETES
AMTK.P0035US.P1	United States of America	62/867976	6/28/2019		ADMINISTRATION OF FIBROBLASTS AND DERIVATIVES THEREOF FOR TREATMENT OF TYPE 2 DIABETES
AMTK.P0035WO	Patent Cooperation Treaty	PCT/US2020/039904	6/26/2020		ADMINISTRATION OF FIBROBLASTS AND DERIVATIVES THEREOF FOR TREATMENT OF TYPE 2 DIABETES
AMTK.P0036US	United States of America	16/822811	3/18/2020		TREATMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND LUNG DEGENERATION USING ACTIVATED FIBROBLASTS AND EXOSOME DERIVATIVES THEREOF
AMTK.P0036US.P1	United States of America	62/820763	3/19/2019		TREATMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND LUNG DEGENERATION USING ACTIVATED FIBROBLASTS AND EXOSOME DERIVATIVES THEREOF

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0036WO	Patent Cooperation Treaty	PCT/US2020/023339	3/18/2020		TREATMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND LUNG DEGENERATION USING ACTIVATED FIBROBLASTS AND EXOSOME DERIVATIVES THEREOF
AMTK.P0037US.P1	United States of America	62/845403	5/9/2019		FIBROBLAST GENERATED PATIENT SPECIFIC VACCINES
AMTK.P0037WO	Patent Cooperation Treaty	PCT/US2020/032207	5/8/2020		FIBROBLAST GENERATED PATIENT-SPECIFIC VACCINES
AMTK.P0038US.P1	United States of America	62/839652	4/27/2019		ENHANCEMENT OF FIBROBLAST THERAPEUTIC ACTIVITY BY T CELL MODULATION
AMTK.P0038WO	Patent Cooperation Treaty	PCT/US2020/030045	4/27/2020		ENHANCEMENT OF FIBROBLAST THERAPEUTIC ACTIVITY BY T CELL MODULATION
AMTK.P0040US.P1	United States of America	62/860252	6/12/2019		ENHANCEMENT OF FIBROBLAST THERAPEUTIC ACTIVITY BY RNA
AMTK.P0040WO	Patent Cooperation Treaty	PCT/US2020/037467	6/12/2020		ENHANCEMENT OF FIBROBLAST THERAPEUTIC ACTIVITY BY RNA
AMTK.P0043US.P1	United States of America	62/915292	10/15/2019		PREVENTION OF RECURRENT MISCARRIAGES THROUGH ADMINISTRATION OF FIBROBLAST AND FIBROBLAST EDUCATED PATERNAL CELLS

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0043WO	Patent Cooperation Treaty	PCT/US2020/055642	10/14/2020		PREVENTION OF RECURRENT MISCARRIAGES THROUGH ADMINISTRATION OF FIBROBLAST AND FIBROBLAST EDUCATED PATERNAL CELLS
AMTK.P0046US.P1	United States of America	62/953836	12/26/2019		PREVENTION AND TREATMENT OF KIDNEY FAILURE BY ADMINISTRATION OF FIBROBLASTS AND PRODUCTS THEREOF
AMTK.P0046WO	Patent Cooperation Treaty	PCT/US2020/066585	12/22/2020		PREVENTION AND TREATMENT OF KIDNEY FAILURE BY ADMINISTRATION OF FIBROBLASTS AND PRODUCTS THEREOF
AMTK.P0047US	United States of America	16/887971	5/29/2020		FIBROBLAST THERAPY FOR TREATMENT OF DUCHENNE MUSCULAR DYSTROPHY
AMTK.P0047US.P1	United States of America	62/855014	5/31/2019		FIBROBLAST THERAPY FOR TREATMENT OF DUCHENNE MUSCULAR DYSTROPHY
AMTK.P0047WO	Patent Cooperation Treaty	PCT/US2020/035283	5/29/2020		FIBROBLAST THERAPY FOR TREATMENT OF DUCHENNE MUSCULAR DYSTROPHY
AMTK.P0049US.P1	United States of America	62/864503	6/21/2019		TREATMENT OF AUTISM SPECTRUM DISORDER AND ASSOCIATED NEUROINFLAMMATION USING FIBROBLASTS AND DERIVATIVES THEREOF

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0049WO	Patent Cooperation Treaty	PCT/US2020/038967	6/22/2020		TREATMENT OF AUTISM SPECTRUM DISORDER AND ASSOCIATED NEUROINFLAMMATION USING FIBROBLASTS AND DERIVATIVES THEREOF
AMTK.P0050US.P1	United States of America	62/953843	12/26/2019		SUPRESSION OF INTERLEUKIN-17 PRODUCTION AND INHIBITION OF Th17 CELL GENERATION BY FIBROBLASTS AND PRODUCTS THEREOF
AMTK.P0050WO	Patent Cooperation Treaty	PCT/US2020/066591	12/22/2020		SUPRESSION OF INTERLEUKIN-17 PRODUCTION AND INHIBITION OF Th17 CELL GENERATION BY FIBROBLASTS AND PRODUCTS THEREOF
AMTK.P0051US.P1	United States of America	62/953847	12/26/2019		INHIBITION OF TNF-ALPHA BY FIBROBLASTS AND FIBROBLAST EXOSOMES
AMTK.P0051WO	Patent Cooperation Treaty	PCT/US2020/066602	12/22/2020		INHIBITION OF TNF-ALPHA BY FIBROBLASTS AND FIBROBLAST EXOSOMES
AMTK.P0052US.P1	United States of America	62/915152	10/15/2019		FIBROBLAST - BASED IMMUNOTHERAPY OF GRAVES DISEASE
AMTK.P0052WO	Patent Cooperation Treaty	PCT/US2020/055641	10/14/2020		FIBROBLAST - BASED IMMUNOTHERAPY OF GRAVES DISEASE
AMTK.P0053US.P1	United States of America	62/935678	11/15/2019		FIBROBLAST THERAPY FOR INFLAMMATORY BOWEL DISEASE
AMTK.P0053WO	Patent Cooperation Treaty	PCT/US2020/060748	11/16/2020		FIBROBLAST THERAPY FOR INFLAMMATORY BOWEL DISEASE

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0057US.P1	United States of America	62/914747	10/14/2019		TREATMENT OF AUTOIMMUNITY AND TRANSPLANT REJECTION THROUGH ESTABLISHMENT AND/OR PROMOTION OF TOLEROGENIC PROCESSES BY FIBROBLAST-MEDIATED REPROGRAMMING OF ANTIGEN PRESENTING CELLS
AMTK.P0057WO	Patent Cooperation Treaty	PCT/US2020/055427	10/13/2020		TREATMENT OF AUTOIMMUNITY AND TRANSPLANT REJECTION THROUGH ESTABLISHMENT AND/OR PROMOTION OF TOLEROGENIC PROCESSES BY FIBROBLAST-MEDIATED REPROGRAMMING OF ANTIGEN PRESENTING CELLS
AMTK.P0058US.P1	United States of America	62/936548	11/17/2019		FIBROBLAST-BASED THERAPY AND TREATMENT AND PREVENTION OF STROKE
AMTK.P0058US.P2	United States of America	63/047813	7/2/2020		FIBROBLAST-BASED THERAPY AND TREATMENT AND PREVENTION OF STROKE
AMTK.P0058WO	Patent Cooperation Treaty	PCT/US2020/060724	11/16/2020		FIBROBLAST-BASED THERAPY AND TREATMENT AND PREVENTION OF STROKE
AMTK.P0059US.P1	United States of America	62/976048	2/13/2020		TREATMENT AND PREVENTION OF CEREBRAL PALSY USING FIBROBLASTS

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0059WO	Patent Cooperation Treaty	PCT/US2021/017998	2/12/2021		TREATMENT OF CEREBRAL PALSY USING FIBROBLASTS
AMTK.P0060US.P1	United States of America	62/929250	11/1/2019		FIBROBLAST-BASED THERAPY FOR TREATMENT OF SCLEROSING CHOLANGITIS
AMTK.P0060WO	Patent Cooperation Treaty	PCT/US2020/058500	11/2/2020		FIBROBLAST-BASED THERAPY FOR TREATMENT OF SCLEROSING CHOLANGITIS
AMTK.P0062US.P1	United States of America	63/024440	5/13/2020		FIBROBLAST BASED CELL THERAPY FOR TREATMENT OF PARKINSON'S DISEASE
AMTK.P0062WO	Patent Cooperation Treaty	PCT/US2021/070551	5/13/2021		FIBROBLAST BASED CELL THERAPY FOR TREATMENT OF PARKINSON'S DISEASE
AMTK.P0063US.P1	United States of America	63/008970	4/13/2020		TREATMENT OF ERECTILE DYSFUNCTION BY FIBROBLAST ADMINISTRATION
AMTK.P0063WO	Patent Cooperation Treaty	PCT/US2021/026752	4/10/2021		TREATMENT OF ERECTILE DYSFUNCTION BY FIBROBLAST ADMINISTRATION
AMTK.P0064US.P1	United States of America	63/006957	4/8/2020		METHODS AND COMPOSITIONS FOR ALLERGY AND ASTHMA TREATMENT USING FIBROBLASTS
AMTK.P0064WO	Patent Cooperation Treaty	PCT/US2021/025959	4/6/2021		METHODS AND COMPOSITIONS FOR ALLERGY AND ASTHMA TREATMENT USING FIBROBLASTS

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0065US.P1	United States of America	62/897428	9/9/2019		FIBROBLAST AND FIBROBLAST-IMMUNOCYTE COMBINATIONS FOR TREATMENT OF SUBCONCUSSIVE- AND CONCUSSIVE ASSOCIATED NEUROLOGICAL DAMAGE
AMTK.P0065WO	Patent Cooperation Treaty	PCT/US2020/049949	9/9/2020		FIBROBLAST AND FIBROBLAST-IMMUNOCYTE COMBINATIONS FOR TREATMENT OF SUBCONCUSSIVE- AND CONCUSSIVE ASSOCIATED NEUROLOGICAL DAMAGE
AMTK.P0066US.P1	United States of America	62/897429	9/9/2019		TREATMENT OF TRAUMATIC ENCEPHALOPATHY BY FIBROBLASTS AND THERAPEUTIC ADJUVANTS
AMTK.P0066WO	Patent Cooperation Treaty	PCT/US2020/049990	9/9/2020		TREATMENT OF TRAUMATIC ENCEPHALOPATHY BY FIBROBLASTS AND THERAPEUTIC ADJUVANTS
AMTK.P0067US.P1	United States of America	63/033092	6/1/2020		FIBROBLASTS AS A REGENERATIVE CELLULAR SOURCE FOR TREATMENT OF BLINDNESS
AMTK.P0067WO	Patent Cooperation Treaty				FIBROBLASTS AS A REGENERATIVE CELLULAR SOURCE FOR TREATMENT OF BLINDNESS
AMTK.P0068US.P1	United States of America	63/015150	4/24/2020		TREATMENT OF FRONTOTEMPORAL DEMENTIA USING FIBROBLASTS AND PRODUCTS THEREOF

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0068WO	Patent Cooperation Treaty	PCT/US2021/027980	4/19/2021		TREATMENT OF FRONTOTEMPORAL DEMENTIA USING FIBROBLASTS AND PRODUCTS THEREOF
AMTK.P0069US.P1	United States of America	63/012200	4/19/2020		MEANS AND METHODS OF AUGMENTATION OF FIBROBLAST THERAPEUTIC PROPERTIES USING EXTRACORPOREAL SHOCK WAVE THERAPY AND/OR TRANSFECTION OF BIOLOGICALLY RELEVANT MOLECULES
AMTK.P0069WO	Patent Cooperation Treaty	PCT/US2021/027654	4/16/2021		MEANS AND METHODS OF AUGMENTATION OF FIBROBLAST THERAPEUTIC PROPERTIES USING EXTRACORPOREAL SHOCK WAVE THERAPY AND/OR TRANSFECTION OF BIOLOGICALLY RELEVANT MOLECULES
AMTK.P0070US.P1	United States of America	63/031782	5/29/2020		FIBROBLAST THERAPY FOR PREVENTION AND REVERSION OF ANEURYSMS
AMTK.P0070WO	Patent Cooperation Treaty				FIBROBLAST THERAPY FOR PREVENTION AND REVERSION OF ANEURYSMS
AMTK.P0071US.P1	United States of America	63/025092	5/14/2020		TREATMENT OF OVARIAN FAILURE USING REGENERATIVE CELLS
AMTK.P0071WO	Patent Cooperation Treaty	PCT/US2021/070555	5/14/2021		TREATMENT OF OVARIAN FAILURE USING REGENERATIVE CELLS

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0072US.P1	United States of America	63/031810	5/29/2020		AUGMENTATION OF FIBROBLAST CELL THERAPY EFFICACY BY MICROBIOME MANIPULATION
AMTK.P0072WO	Patent Cooperation Treaty				AUGMENTATION OF FIBROBLAST CELL THERAPY EFFICACY BY MICROBIOME MANIPULATION
AMTK.P0073US.P1	United States of America				TREATMENT OF CEREBRAL HEMORRHAGE USING FIBROBLASTS, MODIFIED FIBROBLASTS AND DERIVATIVES THEREOF
AMTK.P0075US.P1	United States of America	63/012202	4/19/2020		GENE MODIFIED FIBROBLASTS FOR THERAPEUTIC APPLICATIONS
AMTK.P0075WO	Patent Cooperation Treaty	PCT/US2021/027990	4/19/2021		GENE MODIFIED FIBROBLASTS FOR THERAPEUTIC APPLICATIONS
AMTK.P0076US.P1	United States of America	62/986339	3/6/2020		FIBROBLAST AND TLR ACTIVATED FIBROBLAST TREATMENT OF VIRAL INDUCED ACUTE RESPIRATORY DISTRESS SYNDROME
AMTK.P0076WO	Patent Cooperation Treaty	PCT/US2021/020449	3/2/2021		FIBROBLAST AND TLR ACTIVATED FIBROBLAST TREATMENT OF VIRAL INDUCED ACUTE RESPIRATORY DISTRESS SYNDROME
AMTK.P0078US.P1	United States of America	62/989118	3/13/2020		GENERATION OF AUTOIMMUNE INHIBITORY T CELLS BY FIBROBLAST MEDIATED EDUCATION

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0078WO	Patent Cooperation Treaty	PCT/US2021/022145	3/12/2021		GENERATION OF AUTOIMMUNE INHIBITORY T CELLS BY FIBROBLAST MEDIATED EDUCATION
AMTK.P0079US.P1	United States of America	63/002134	3/30/2020		PEPTIDES AND ADJUVANTS FOR AUGMENTATION OF FIBROBLAST THERAPY FOR CORONAVIRUS
AMTK.P0079US.P2	United States of America	63/003742	4/1/2020		PEPTIDES AND ADJUVANTS FOR AUGMENTATION OF FIBROBLAST THERAPY FOR CORONAVIRUS
AMTK.P0079WO	Patent Cooperation Treaty	PCT/US2021/020457	3/2/2021		PEPTIDES AND ADJUVANTS FOR AUGMENTATION OF FIBROBLAST THERAPY FOR CORONAVIRUS
AMTK.P0080US.P1	United States of America	63/003731	4/1/2020		FIBROBLAST MEDIATED EXPANSION AND AUGMENTATION OF IMMUNE REGULATORY CELLS FOR TREATMENT OF ACUTE RESPIRATORY DISTRESS SYNDROME (ARDS)
AMTK.P0080US.P2	United States of America	63/017068	4/29/2020		FIBROBLAST MEDIATED EXPANSION AND AUGMENTATION OF IMMUNE REGULATORY CELLS FOR TREATMENT OF ACUTE RESPIRATORY DISTRESS SYNDROME (ARDS)

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0080WO	Patent Cooperation Treaty	PCT/US2021/020459	3/2/2021		FIBROBLAST MEDIATED EXPANSION AND AUGMENTATION OF IMMUNE REGULATORY CELLS FOR TREATMENT OF ACUTE RESPIRATORY DISTRESS SYNDROME (ARDS)
AMTK.P0081US.P1	United States of America				TREATMENT OF ACUTE RESPIRATORY DISTRESS SYNDROME BY FIBROBLASTS AND ANTI-INFLAMMATORY ANTIGEN
AMTK.P0082US.P1	United States of America	63/020198	5/5/2020		REDUCTION OF CYTOKINE STORM AND PATHOLOGICAL INFLAMMATION INCLUDING CAUSED BY CORONAVIRUS USING SPHAGNUM AND EXTRACTS THEREOF
AMTK.P0082WO	Patent Cooperation Treaty	PCT/US2021/070504	5/4/2021		REDUCTION OF CYTOKINE STORM AND PATHOLOGICAL INFLAMMATION INCLUDING CAUSED BY CORONAVIRUS USING SPHAGNUM AND EXTRACTS THEREOF
AMTK.P0083US.P1	United States of America	63/051845	7/14/2020		AUGMENTATION OF FIBROBLAST THERAPEUTIC ACTIVITY BY COMPLEMENT BLOCKADE AND/OR INHIBITION
AMTK.P0084US.P1	United States of America	63/071333	8/27/2020		DENTAL AND PERIODONTAL APPLICATION OF FIBROBLASTS

Docket Number	Country	Appl. No.	Date Filed	Patent No.	Title
AMTK.P0085US.P1	United States of America	63/064538	8/12/2020		Reduction of COVID-19 Coagulopathy and Other Inflammation Associated Coagulopathies by Administration of Fibroblasts
AMTK.P0086US.P1	United States of America				TREATMENT OF ALOPECIA AND/OR STIMULATION OF HAIR FOLLICLE REGENERATION BY ADMINISTRATION OF FIBROBLASTS AND/OR PRODUCTS THEREOF

[End of Schedule 2.]

PATENT ASSIGNMENT AGREEMENT

This PATENT ASSIGNMENT AGREEMENT (this "Assignment"), dated as of May 17, 2021 (the "Effective Date"), is made and entered into by and between **SPINALCYTE LLC**, a Texas limited liability company ("SpinalCyte") and **FIBROBIOLOGICS LLC**, a Texas limited liability company ("FibroBiologics"). FibroBiologics and SpinalCyte are each referred to individually as a "Party" and collectively as the "Parties."

RECITALS

WHEREAS, SpinalCyte is the owner of all right, title and interest in and to the Patents (as defined below);

WHEREAS, Fibrobiologics is a wholly owned subsidiary of SpinalCyte, and SpinalCyte wishes to sell and transfer all right, title and interest in the Patents to FibroBiologics for further development of the patented technology as well as securing and maintaining related patent rights;

WHEREAS, FibroBiologics wishes to purchase and receive from SpinalCyte all right, title and interest in the Patents from SpinalCyte; and

WHEREAS, in consideration of this assignment, the parties have separately agreed to a cross-license of patents.

NOW, THEREFORE, in consideration of the foregoing and the respective representations, warranties, covenants and agreements set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. Patents. "Patents" means the United States patents and patent applications listed on Exhibit A hereto, all reissues, reexaminations, extensions, continuations, continuations in part, continuing prosecution applications, provisionals and divisions of such patents granted in the United States, and any United States or foreign patents or patent applications that claim priority to any of the foregoing, whether or not listed on Exhibit A.

2. Assignment. SpinalCyte hereby irrevocably transfers and assigns to FibroBiologics, and FibroBiologics hereby accepts, all right, title and interest in and to the Patents, free and clear of any and all debts, liens, encumbrances, obligations and liabilities of any kind, and all income, royalties, damages, claims, and payments now or hereafter due or payable with respect to the Patents; all causes of action for past, present, or future infringement based upon, relating to, or arising out of any of the Patents; the right to claim priority to all patents and applications (throughout the world) of any kind that claim priority to or otherwise issue from any of the Patent(s); and all rights corresponding to the Patents throughout the world.

3. Representations and Warranties; Disclaimer of Warranties. SpinalCyte hereby represents, warrants and covenants that (a) SpinalCyte has the right, and full power and authority, on behalf of SpinalCyte to make the assignments as well as the representation, warranties and covenants made herein; (b) SpinalCyte has not executed nor will it execute any agreement in conflict herewith; and (c) SpinalCyte will not challenge or dispute the ownership, validity or enforceability of the Patents either directly or indirectly, nor allow any person or entity under SpinalCyte's control to do so. SpinalCyte ASSIGNS THE PATENTS TO FibroBiologics "AS IS" AND MAKES NO WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, IN RELATION TO THE PATENTS. WITHOUT LIMITING THE FOREGOING, SpinalCyte

DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT.

4. Further Assurances. SpinalCyte agrees to execute and deliver or cause to be executed and delivered to FibroBiologics, at FibroBiologics's expense (but without further compensation to SpinalCyte), such further instruments of transfer and conveyance, to execute and deliver or cause to be executed and delivered all applications and all divisional, continuing and reissue applications, to execute and deliver or cause to be executed and delivered all renewals, to make or cause to be made all rightful oaths, and to take or cause to be taken such other actions as may reasonably request to carry out the transfer of the Patents conveyed herein. SpinalCyte will, and will cause persons under its control to, communicate to FibroBiologics, its successors, legal representatives and assigns, any facts known to them respecting the Patents, testify in any legal proceeding, and generally do everything reasonably possible to aid FibroBiologics, its successors, legal representatives and assigns, to obtain and enforce and protect the Patents in all countries, provided only that FibroBiologics shall pay, or reimburse SpinalCyte for, all reasonable out of pocket expenses incurred by SpinalCyte incident to the performance of its obligations under this paragraph.

5. Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws and regulations of Texas, U.S.A., excluding any conflict of laws rule that would result in the application of the laws of another jurisdiction.

6. Headings. Headings of the various articles and sections, where used herein, are merely present for convenience and shall not be used in construing this Agreement.

7. Entire Agreement. This Agreement and any Appendices attached hereto constitute the entire agreement and understanding between the Parties with respect to the subject matter hereof and supersedes any prior agreement, understanding or arrangement between the Parties, whether oral or in writing, with respect to the subject matter hereof. No representation, undertaking or promise shall be taken to have been given or be implied from anything said or written in negotiations between the Parties prior to this Agreement except as expressly stated in this Agreement.

8. Modifications. This Agreement may not be modified or amended unless such modification or amendment is made in writing and is signed by the Parties.

9. No Waiver. Failure of either Party to enforce or exercise, at any time or for any period, any term of this Agreement, does not constitute, and shall not be construed as, a waiver of such term and shall not affect the right later to enforce such term or any other term herein contained.

10. Severability. If any provision of this Agreement should be void or held illegal or unenforceable, the other provisions shall not be affected and the Parties will replace any provision held void, illegal or unenforceable with provisions which will achieve as far as possible the intention or results sought to be achieved by the void provisions.

11. Counterparts. This Agreement may be executed in two (2) counterparts, each of which shall be deemed an original, but which together shall constitute one and the same instrument.

12. Signatures. Facsimile signatures (including pdf signatures) transmitted by the Parties hereto shall be deemed as effective as original signatures on this Agreement.

[Signature Page Attached]

IN WITNESS WHEREOF, the Parties hereto have caused this Assignment to be executed by their respective duly authorized officers as of Effective Date.

SpinalCyte, LLC

By: _____
Name: PETE O'HEARON
Title: CEO

FibroBiologics, LLC

By: _____
Name: PETE O'HEARON
Title: CEO

[Signature Page to Patent Assignment Agreement]

Schedule A
Patents and Patent Applications

[End of Schedule A.]

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0002AU.D1	Australia	2011253785	12/2/2011	2011253785	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002AU.D2	Australia	2013257540	11/19/2013	2013257540	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002AU.D3	Australia	2015202319	5/6/2015	2015202319	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002AU.D4	Australia	2017206234	7/20/2017	2017206234	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002AU.D5	Australia	2018220112	8/23/2018	2018220112	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002CN.D1	China	201110261353.3	8/9/2011	ZL 201110261353.3	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002JP.D1	Japan	2012-241637	11/1/2012	6151006	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002JP.D2	Japan	2015-080729	4/10/2015		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0002JP.D3	Japan	2017-184649	9/26/2017	6676022	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002JP.D3D1	Japan	2020-000328	1/6/2020		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002JP.D4	Japan	2017-184650	9/26/2017		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.C1	United States of America	13/185472	7/18/2011	9138460	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D1	United States of America	12/775720	5/7/2010	8728495	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D2	United States of America	12/775736	5/7/2010	9545432	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D2C1	United States of America	15/371994	12/7/2016	10052410	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D2C2	United States of America	16/038915	7/18/2018	10806824	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D2C3	United States of America	16/865926	5/4/2020		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0002US.D3	United States of America	12/775753	5/7/2010	8298560	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D4	United States of America	12/775765	5/7/2010	9320776	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0002US.D5	United States of America	12/775771	5/7/2010	9533024	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0003CN	China	201280063195.3	6/20/2014		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003CN.D1	China	201711263200.6	12/5/2017		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003ECH	Switzerland	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003ECH.D1	Switzerland	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EDE	Germany	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EDE.D1	Germany	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EES	Spain	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EES.D1	Spain	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EFR	France	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0003EFR.D1	France	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EGB	United Kingdom	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EGB.D1	United Kingdom	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EHK	Hong Kong	14111200.7	11/4/2014	HK1197832	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EHK.D1	Hong Kong	18111368.1	9/5/2018	HK1252036	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EIE.D1	Ireland	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EIT	Italy	12846950.9		2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EIT.D1	Italy	17192969.8		3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EP	European Patent Office	12846950.9	5/21/2014	2776556	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EP.D1	European Patent Office	17192969.8	9/25/2017	3290511	FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003EP.D2	European Patent Office	20186304.0	7/16/2020		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003IN	India	3911/DELNP/2014	5/15/2014		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003US	United States of America	14/357558	5/9/2014		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003US.D1	United States of America	15/957741	4/19/2018		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0003US.P1	United States of America	61/557479	11/9/2011		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003US.P2	United States of America	61/691391	8/21/2012		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0003WO	Patent Cooperation Treaty	PCT/US2012/064101	11/8/2012		FIBROBLASTS FOR TREATMENT OF DEGENERATIVE DISC DISEASE
AMTK.P0004AU	Australia	2013299505	2/2/2015	2013299505	GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004AU.D1	Australia	2017201708	3/13/2017	2017201708	GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004CA	Canada	2881126	2/4/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004CHK.D1	Hong Kong	42020009561.0	6/18/2020		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004CN	China	201380047210.X	3/11/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004CN.D1	China	201911186070.X	11/28/2019		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004EHK	Hong Kong	15110635.3	10/28/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004EP	European Patent Office	13827360.2	3/4/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004IN	India	1321/DELNP/2015	2/18/2015		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004JP	Japan	2015-526709	2/9/2015	6456826	GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004JP.D1	Japan	2018-032337	2/26/2018	6574502	GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004JP.D2	Japan	2019-149332	8/16/2019		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004US	United States of America	13/962241	8/8/2013		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0004US.P1	United States of America	61/681731	8/10/2012		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0004WO	Patent Cooperation Treaty	PCT/US2013/054158	8/8/2013		GENERATION OF CARTILAGE EX VIVO FROM FIBROBLASTS
AMTK.P0005AU	Australia	2014281818	12/7/2015	2014281818	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005AU.D1	Australia	2019253856	10/23/2019		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005CA	Canada	2915249	12/11/2015		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005CN	China	201480039060.2	1/8/2016		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005ECH	Switzerland	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EDE	Germany	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EES	Spain	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EFR	France	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EGB	United Kingdom	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EHK	Hong Kong	16110257.9	8/29/2016		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EIE	Ireland	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EIT	Italy	14813201.2		3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005EP	European Patent Office	14813201.2	1/6/2016	3011015	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0005IN	India	201617001725	1/18/2016		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005JP	Japan	2016-521475	12/18/2015		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005JP.D1	Japan	2020-119475	7/10/2020		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005US	United States of America	14/304247	6/13/2014	10206954	ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005US.C1	United States of America	16/244333	1/10/2019		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005US.P1	United States of America	61/836975	6/19/2013		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0005WO	Patent Cooperation Treaty	PCT/US2014/042322	6/13/2014		ADIPOSE CELLS FOR CHONDROCYTE APPLICATIONS
AMTK.P0006AU	Australia	2014317861	3/8/2016	2014317861	GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006AU.D1	Australia	2019268095	11/20/2019		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006CA	Canada	2923857	3/9/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006CN	China	201480057130.7	4/18/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0006EHK	Hong Kong	16112454.6	10/28/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006EP	European Patent Office	14841529.2	4/5/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006IN	India	201617011955	4/5/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006JP	Japan	2016-542044	3/9/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006JP.D1	Japan	2020-033592	2/28/2020		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006US	United States of America	14/917560	3/8/2016		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006US.P1	United States of America	61/875509	9/9/2013		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0006WO	Patent Cooperation Treaty	PCT/US2014/054804	9/9/2014		GENE THERAPY FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007AU	Australia	2017207445	7/3/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0007CA	Canada	3011306	7/11/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007CN	China	201780011692.1	8/16/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007EHK	Hong Kong	18115243.3	11/28/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007EP	European Patent Office	17739050.7	7/12/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007IN	India	201817025735	7/10/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007JP	Japan	2018-536724	7/13/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007US	United States of America	16/068096	7/3/2018		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007US.P1	United States of America	62/278635	1/14/2016		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0007US.P2	United States of America	62/413587	10/27/2016		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0007WO	Patent Cooperation Treaty	PCT/US2017/013449	1/13/2017		CELLULAR BLEND FOR THE REGENERATION OF CHONDROCYTES OR CARTILAGE TYPE CELLS
AMTK.P0008CA.D1	Canada	2925550	3/30/2016	2925550	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008CA.D2	Canada	3019254	10/1/2018	3019254	USE OF CHONDROCYTE-LIKE CELLS TO TREAT A JOINT IN NEED OF REPAIR
AMTK.P0008ECH	Switzerland	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008ECH.D1	Switzerland	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EDE	Germany	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EDE.D1	Germany	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EES	Spain	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EES.D1	Spain	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0008EFR	France	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EFR.D1	France	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EGB	United Kingdom	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EGB.D1	United Kingdom	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EHK.D1	Hong Kong	17108880.7	9/4/2017	HK1236375	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EIT	Italy	07763383.2		1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EIT.D1	Italy	16195838.4		3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0008EP.D1	European Patent Office	16195838.4	10/26/2016	3146939	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
AMTK.P0017EP	European Patent Office	19795975.2	11/23/2020		FIBROBLAST DELIVERY OF TUMOR INHIBITORY AGENTS
AMTK.P0017US	United States of America	17/052830	11/4/2020		FIBROBLAST DELIVERY OF TUMOR INHIBITORY AGENTS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0017US.P1	United States of America	62/666786	5/4/2018		FIBROBLAST DELIVERY OF TUMOR INHIBITORY AGENTS
AMTK.P0017WO	Patent Cooperation Treaty	PCT/US2019/030585	5/3/2019		FIBROBLAST DELIVERY OF TUMOR INHIBITORY AGENTS
AMTK.P0018EP	European Patent Office	19795797.0	11/23/2020		DE-DIFFERENTIATED FIBROBLAST-CONDITIONED MEDIA FOR STIMULATION OF DISC REGENERATION
AMTK.P0018US	United States of America	17/052841	11/4/2020		DE-DIFFERENTIATED FIBROBLAST-CONDITIONED MEDIA FOR STIMULATION OF DISC REGENERATION
AMTK.P0018US.P1	United States of America	62/666777	5/4/2018		DE-DIFFERENTIATED FIBROBLAST-CONDITIONED MEDIA FOR STIMULATION OF DISC REGENERATION
AMTK.P0018WO	Patent Cooperation Treaty	PCT/US2019/030570	5/3/2019		DE-DIFFERENTIATED FIBROBLAST-CONDITIONED MEDIA FOR STIMULATION OF DISC REGENERATION
AMTK.P0019EHK	Hong Kong				INTRADISCAL T-REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0019EP	European Patent Office	19796226.9	11/24/2020		INTRADISCAL T-REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0019US	United States of America	17/052845	11/4/2020		INTRADISCAL T-REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0019US.P1	United States of America	62/666807	5/4/2018		INTRADISCAL T REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0019WO	Patent Cooperation Treaty	PCT/US2019/030564	5/3/2019		INTRADISCAL T-REGULATORY CELL ADMINISTRATION FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0020EP	European Patent Office	19796689.8	11/24/2020		ENHANCEMENT OF FIBROBLAST PLASTICITY FOR TREATMENT OF DISC DEGENERATION
AMTK.P0020US	United States of America	17/052854	11/4/2020		ENHANCEMENT OF FIBROBLAST PLASTICITY FOR TREATMENT OF DISC DEGENERATION
AMTK.P0020US.P1	United States of America	62/666816	5/4/2018		ENHANCEMENT OF FIBROBLAST PLASTICITY FOR TREATMENT OF DISC DEGENERATION
AMTK.P0020WO	Patent Cooperation Treaty	PCT/US2019/030577	5/3/2019		ENHANCEMENT OF FIBROBLAST PLASTICITY FOR TREATMENT OF DISC DEGENERATION
AMTK.P0025AU	Australia	2019332928	3/11/2021		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025CA	Canada	3111213	2/26/2021		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0025EP	European Patent Office	19853816.7	3/24/2021		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025US	United States of America	17/271529	2/25/2021		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025US.P1	United States of America	62/723105	8/27/2018		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025US.P2	United States of America	62/820636	3/19/2019		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0025WO	Patent Cooperation Treaty	PCT/US2019/048311	8/27/2019		CHIMERIC ANTIGEN RECEPTOR FIBROBLAST CELLS FOR TREATMENT OF CANCER
AMTK.P0033US.P1	United States of America	62/793545	1/17/2019		FIBROBLASTS AND MACROVESICLES THEREOF FOR REDUCTION OF TOXICITY ASSOCIATED WITH CANCER INNUMOTHERAPY
AMTK.P0033WO	Patent Cooperation Treaty	PCT/US2020/014018	1/17/2020		FIBROBLASTS AND MICROVESICLES THEREOF FOR REDUCTION OF TOXICITY ASSOCIATED WITH CANCER INNUMOTHERAPY
AMTK.P0039US.P1	United States of America	62/839716	4/28/2019		FIBROBLAST CELL THERAPY FOR TREATMENT OF OSTEOPOROSIS
AMTK.P0039WO	Patent Cooperation Treaty	PCT/US2020/030063	4/27/2020		FIBROBLAST CELL THERAPY FOR TREATMENT OF OSTEOPOROSIS
AMTK.P0041US.P1	United States of America	62/929828	11/2/2019		FIBROBLAST-DERIVED UNIVERSAL IMMUNOLOGICAL COMPOSITION

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0041WO	Patent Cooperation Treaty	PCT/US2020/058492	11/2/2020		FIBROBLAST-DERIVED UNIVERSAL IMMUNOLOGICAL COMPOSITION
AMTK.P0042US	United States of America	17/022897	9/16/2020		TREATMENT OF DISC DEGENERATIVE DISEASE AND STIMULATION OF PROTEOGLYCAN SYNTHESIS BY FIBROBLAST CONDITIONED MEDIA AND FORMULATIONS THEREOF
AMTK.P0042US.P1	United States of America	62/901164	9/16/2019		TREATMENT OF DISC DEGENERATIVE DISEASE AND STIMULATION OF PROTEOGLYCAN SYNTHESIS BY FIBROBLAST CONDITIONED MEDIA AND FORMULATIONS THEREOF
AMTK.P0042WO	Patent Cooperation Treaty	PCT/US2020/051036	9/16/2020		TREATMENT OF DISC DEGENERATIVE DISEASE AND STIMULATION OF PROTEOGLYCAN SYNTHESIS BY FIBROBLAST CONDITIONED MEDIA AND FORMULATIONS THEREOF
AMTK.P0044US.P1	United States of America	62/929830	11/2/2019		INTRATUMORAL ADMINISTRATION OF IMMUNE CELLULAR THERAPEUTICS
AMTK.P0044WO	Patent Cooperation Treaty	PCT/US2020/058497	11/2/2020		INTRATUMORAL ADMINISTRATION OF IMMUNE CELLULAR THERAPEUTICS
AMTK.P0045US.P1	United States of America				FIBROBLAST DELIVERY OF HYPERACUTE REJECTION INDUCING PAYLOAD TO CANCER CELLS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0048US.P1	United States of America	62/953841	12/26/2019		AUGMENTATION OF FIBROBLAST MEDIATED REGENERATION OF INTRAVERTEBRAL DISCS
AMTK.P0048WO	Patent Cooperation Treaty	PCT/US2020/067225	12/28/2020		AUGMENTATION OF FIBROBLAST MEDIATED REGENERATION OF INTRAVERTEBRAL DISCS
AMTK.P0054US.P1	United States of America	62/914523	10/13/2019		CANNABIDIOL ADJUVANT THERAPY FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0054WO	Patent Cooperation Treaty	PCT/US2020/055313	10/13/2020		CANNABIDIOL ADJUVANT THERAPY FOR TREATMENT OF DISC DEGENERATIVE DISEASE
AMTK.P0055US	United States of America	16887720	5/29/2020		CONCURRENT ACTIVATION OF REGENERATIVE AND TOLEROGENIC PROCESSES BY FIBROBLAST-BASED COMPOSITIONS FOR THE TREATMENT OF MULTIPLE SCLEROSIS
AMTK.P0055US.P1	United States of America	62855010	5/31/2019		CONCURRENT ACTIVATION OF REGENERATIVE AND TOLEROGENIC PROCESSES BY FIBROBLAST-BASED COMPOSITIONS FOR THE TREATMENT OF MULTIPLE SCLEROSIS
AMTK.P0055WO	Patent Cooperation Treaty	PCT/US2020/035234	5/29/2020		CONCURRENT ACTIVATION OF REGENERATIVE AND TOLEROGENIC PROCESSES BY FIBROBLAST-BASED COMPOSITIONS FOR THE TREATMENT OF MULTIPLE SCLEROSIS

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
AMTK.P0061US.P1	United States of America	62/977604	2/17/2020		TELOMERE LENGTH MODULATION USING FIBROBLASTS AND DERIVITAVES THEREOF
AMTK.P0061WO	Patent Cooperation Treaty	PCT/US2021/018160	2/16/2021		TELOMERE LENGTH MODULATION USING FIBROBLASTS
AMTK.P0074US.P1	United States of America	63/017918	4/30/2020		IMMUNOTHERAPEUTIC METHODS AND COMPOSITIONS FOR TARGETING CANCER FIBROBLASTS
AMTK.P0074WO	Patent Cooperation Treaty	PCT/US2021/070496	4/30/2021		IMMUNOTHERAPEUTIC METHODS AND COMPOSITIONS FOR TARGETING CANCER FIBROBLASTS
AMTK.P0077US.P1	United States of America		Closed duplicate case		CANCER FIBROBLAST SPECIFIC CANCER IMMUNOTHERAPY
P03351AU0	Australia	2007212085	7/29/2008	2007212085	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351CA0	Canada	2641170	7/25/2008	2641170	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351CN0	China	200780004506.8	7/31/2008	ZL 200780004506.8	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351EP0	European Patent Office	07763383.2	9/2/2008	1989289	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351HK0	Hong Kong	09104307.1	5/11/2009	HK1125406	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

Docket Number	Country	Appl. No.	Date Filed	Reg. No.	Title
P03351IN0	India	6901/DELNP/2008	8/12/2008		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351JP0	Japan	2008-554464	8/6/2008	5269612	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351US0	United States of America	60/771172	2/7/2006		METHOD FOR REPAIRING AN INTERVERTEBRAL DISC
P03351US1	United States of America	11/671082	2/5/2007	7850983	METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR
P03351WO0	Patent Cooperation Treaty	PCT/US2007/061590	2/5/2007		METHODS AND COMPOSITIONS FOR REPAIR OF CARTILAGE USING AN IN VIVO BIOREACTOR

[End of Schedule A.]

Exhibit 10.3

SHARE PURCHASE AGREEMENT

dated as of November 12, 2021

by and among

FIBROBIOLOGICS LLC,

GEM GLOBAL YIELD LLC SCS

and

GEM YIELD BAHAMAS LIMITED

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EXHIBITS

SHARE PURCHASE AGREEMENT

November 12, 2021

This **SHARE PURCHASE AGREEMENT** (this "Agreement") is made and entered into as of the date first above written by and among FIBROBIOLOGICS LLC, a Delaware limited liability company and having a principal place of business at 16815 Royal Crest Drive, Suite 100, Houston, TX 77058 (the "Company"), GEM GLOBAL YIELD LLC SCS, a "société en commandite simple" formed under the laws of Luxembourg having LEI No. 213800CXBEHFXVLBZO92 having an address at 12C, rue Guillaume J. Kroll, L-1882 Luxembourg (the "Purchaser"); and GEM YIELD BAHAMAS LIMITED, a limited company formed under the laws of the Commonwealth of the Bahamas and having an address at 3 Bayside Executive Park, West Bay Street & Blake Road, P.O. Box N-4875, Nassau, The Bahamas ("GYBL," and together with the Company and Purchaser, the "Parties").

RECITALS

WHEREAS, the Parties desire that, upon the terms and subject to the conditions contained herein, the Company may issue and sell to the Purchaser, and the Purchaser may purchase from the Company up to the Aggregate Limit of the Company's Shares (as defined below);

WHEREAS, such investments will be made in reliance upon the provisions of Section 4(a)(2) of the Securities Act ("Section 4(a)(2)") and Rule 506 of Regulation D promulgated by the Commission under the Securities Act ("Regulation D"), and upon such other exemption from the registration requirements of the Securities Act as may be available with respect to any or all of the investments in the Shares to be made hereunder; and

WHEREAS, the Parties are concurrently entering into a Registration Rights Agreement in the form of Exhibit A hereto (the "Registration Rights Agreement"), pursuant to which the Company shall register the resale of the Shares by the Purchaser, upon the terms and subject to the conditions set forth therein.

NOW, THEREFORE, the Parties, intending to be legally bound, agree as follows:

ARTICLE I
DEFINITIONS

Section 1.01 Definitions.

(a) "Adjustment Date" shall have the meaning assigned to such term in Section 4.12(b).

(b) "Affiliate" means with respect to a party to this Agreement (i) any company of which over fifty percent (50%) of its issued and voting share capital is owned or controlled, directly or indirectly, by said party, or (ii) any company which owns or controls, directly or indirectly, over fifty percent (50%) of the issued and voting share capital of such party, or (iii) any company owned or controlled, directly or indirectly, to the extent of over fifty percent (50%) or more of the issued and voting share capital, by any of the foregoing.

(c) "Aggregate Limit" shall have the meaning assigned to such term in Section 2.01 hereof.

(d) "Bylaws" shall have the meaning assigned to such term in Section 3.01(c) hereof.

(e) "Certificate" shall have the meaning assigned to such term in Section 3.01(c) hereof.

(f) "Change of Control" shall mean (i) the acquisition by any Person of direct or indirect beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of more than 50% of the combined voting power of the then-issued and outstanding equity of the Company; (ii) the occurrence of a merger, consolidation, reorganization, share exchange or similar corporate transaction, whether or not the Company is the surviving entity, other than a transaction which would result in the voting equity outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity) at least 50% of the voting equity shares of the Company or such surviving entity immediately after such transaction; or (iii) the sale, transfer or disposition of all or substantially all of the business and assets of the Company to any Person.

(g) "Closing" shall have the meaning assigned to such term in Section 2.04 hereof.

(h) "Code" means the United States Internal Revenue Code of 1986, as amended.

(i) "Commission" shall mean the Securities and Exchange Commission or any successor entity.

(j) "Commission Documents" shall mean, as of a particular date, all reports, schedules, forms, statements and other documents filed by the Company with the Commission pursuant to the reporting requirements of the Exchange Act, including material filed pursuant to Section 13(a) or 15(d) of the Exchange Act, and shall include all information contained in such filings and all filings incorporated by reference therein.

(k) "Commitment Fee" shall have the meaning assigned to such term in Section 4.12(a).

(l) "Common Shares" means, without limitation, the common stock or other ordinary or common equity interests of the Company that is to be listed on the Principal Market.

(m) "Current Report" shall have the meaning assigned to such term in Section 2.03.

(n) "Current Trading Price" shall have the meaning assigned to such term in Section 4.12(b).

(o) "Daily Closing Price" shall mean the closing bid price of the Common Shares, as recorded by the Principal Market, on a particular day.

(p) "Draw Down" means the transactions contemplated under Section 6.01 of this Agreement.

(q) "Draw Down Amount" means the actual amount of proceeds to be paid by the Purchaser in connection with a Draw Down.

(r) "Draw Down Amount Requested" shall mean the amount of Shares requested by the Company in its Draw Down Notice as provided in Section 6.01(h) hereof.

(s) "Draw Down Exercise Date" shall have the meaning assigned to such term in Section 6.01(h) hereof.

(t) "Draw Down Limit" shall have the meaning assigned to such term in Section 6.01(a) hereof.

(u) "Draw Down Notice" shall mean a notice sent by the Company to exercise a Draw Down as provided in Section 6.01(h) hereof.

(v) "Draw Down Pricing Period" shall mean a period of 30 consecutive Trading Days commencing with the first Trading Day designated in each Draw Down Notice.

(w) "Effective Date" shall mean the date of the execution and delivery of this Agreement.

(x) "Environmental Laws" shall have the meaning assigned to such term in Section 3.01(r) hereof.

(y) "Exchange Act" shall mean the Securities Exchange Act of 1934, as amended, and the rules and regulations of the Commission thereunder.

(z) "Public Listing Date" shall mean the first day on which the Common Shares trade on the Principal Market.

(aa) "GAAP" shall mean generally accepted accounting principles in the United States of America as consistently applied by the Company.

(bb) "Indebtedness" shall have the meaning assigned to such term in Section 3.01(k) hereof.

(cc) "Investment Period" shall have the meaning assigned to such term in Section 7.01 hereof.

(dd) "Knowledge" means the actual knowledge of the Company's Chief Executive Officer and Chief Financial Officer after reasonable inquiry of all officers, directors and any employees of the Company who are direct reports of the Company's Chief Executive Officer and Chief Financial Officer.

(ee) "Lien" means with respect to any property or asset, any mortgage, lien, pledge, charge, security interest, option, adverse claim, restriction on title or transfer, encroachments, occupancy rights, or other encumbrance of any kind or character in respect of such property or asset, and any agreement to create any of the foregoing.

(ff) "Losses" shall have the meaning assigned to such term in Section 8.01(a) hereof.

(gg) "Material Adverse Effect" shall mean (i) any effect on the business, operations, properties, or condition (financial or otherwise) of the Company that is material and adverse to the Company and its subsidiaries, taken as a whole, or (ii) any condition, circumstance, or situation that would prohibit or otherwise materially interfere with the ability of the Company to enter into and perform any of its obligations under this Agreement in any material respect.

(hh) "Material Agreements" shall have the meaning assigned to such term in Section 3.01(r) hereof

(ii) "Parties" shall have the meaning assigned to such term in the preamble.

(jj) "Person" means any natural person, corporation, limited liability company, trust, joint venture, association, company, partnership, governmental authority or other entity.

(kk) "Plan" shall have the meaning assigned to such term in Section 3.01(x) hereof.

(ll) "Principal Market" shall mean the principal U.S. securities exchange or trading market where the Common Shares are traded, including but not limited to any tier of the Nasdaq Stock Market (including Nasdaq Capital Market) or the NYSE American, or any successor to such markets.

(mm) "Private Transaction" shall have the meaning assigned to such term in Section 4.13.

(nn) "Private Transaction Fee" shall have the meaning assigned to such term in Section 4.13.

(oo) "Prospectus" means the applicable prospectus in the form included in the Registration Statement, as supplemented from time to time by any Prospectus Supplement, including the documents incorporated by reference therein.

(pp) "Prospectus Supplement" means any prospectus supplement to the applicable Prospectus filed with the Commission from time to time pursuant to Rule 424(b) under the Securities Act, including the documents incorporated by reference therein.

(qq) "Public Company Date" means the date that the Company becomes subject to the reporting requirements of the Exchange Act.

(rr) "Public Listing" shall mean the public listing of the Common Shares for trading on the Principal Market or the consummation of a Reverse Merger Transaction, whichever is earlier.

(ss) "Public Listing Date" means the date on which the Public Listing occurs.

(tt) "Purchase Price" shall have the meaning assigned to such term in Section 6.01(a) hereof.

(uu) "Registration Statement" shall mean the registration statement on Form S-1 or S-3 under the Securities Act, or other relevant registration statement, to be filed by the Company with

the Commission with respect to the registration of the Shares to be issued under the Draw Downs and the Warrant Shares, pursuant to the Registration Rights Agreement.

(vv) "Reverse Merger Transaction" means a merger, reverse merger, acquisition, consolidation, business combination or similar transaction between the Company or one of its subsidiaries or Affiliates and a special purpose acquisition company or other entity whose securities are publicly listed on the Principal Market, following which transaction (i) the shares of the special purpose acquisition company or other entity, the Company, or one of the Company's subsidiaries or Affiliates are publicly listed on the Principal Market, or (ii) the applicable publicly listed person holds, owns or has the right to acquire, directly or indirectly, all or substantially all of the assets of the Company (and/or any of its subsidiaries or Affiliates), as determined on a consolidated basis prior to the consummation of the applicable transaction.

(ww) "Securities Act" shall mean the Securities Act of 1933, as amended, and the rules and regulations of the Commission thereunder.

(xx) "Settlement Date" shall have the meaning assigned to such term in Section 6.01(d) hereof.

(yy) "Shares" shall mean, collectively, all of the Common Shares of the Company issuable to the Purchaser upon exercise of any Draw Down and upon exercise of the Warrant.

(zz) "Subsidiary" shall mean any corporation or other entity of which at least a majority of the securities or other ownership interest having ordinary voting power (absolutely or contingently) for the election of directors or other Persons performing similar functions are at the time owned directly or indirectly by the Company and/or any of its other subsidiaries.

(aaa) "Successor Company" shall mean (i) any company the common equity shares of which are traded on the Principal Market with which the Company merges, including without limitation, the resulting or successor company in a Reverse Merger Transaction, and (ii) any successor or similar entity of the Company (whether by merger, consolidation or otherwise) or any subsidiary or Affiliate of, or other similar entity related to, the Company or any subsidiary or Affiliate thereof, in each case, formed for the purpose of facilitating, or in connection with, a Public Listing.

(bbb) "Threshold Price" is the lowest price at which the Company may sell Shares during a Draw Down Pricing Period, as set forth in each Draw Down Notice.

(ccc) "Trading Day" shall mean a trading day on the Principal Market.

(ddd) "Transaction Documents" shall mean this Agreement, the Registration Rights Agreement, the Warrant and each other agreement or undertaking executed or delivered to the Purchaser by the Company pursuant hereto or thereto.

(eee) "Warrant" shall have the meaning assigned to such term in Section 4.12(b).

(fff) "Warrant Shares" shall have the meaning assigned to such term in the Warrant.

ARTICLE II
PURCHASE AND SALE OF SHARES

Section 2.01 Purchase and Sale of Shares. Upon the terms and subject to the conditions of this Agreement, the Company may elect to issue and sell to the Purchaser, and if so elected by the Company, the Purchaser agrees to purchase from the Company during the Investment Period (as defined in Section 7.01) up to the number of duly authorized, validly issued, fully paid and non-assessable Common Shares having an aggregate value of U.S. $100,000,000 (the "Aggregate Limit"). Purchases and sales of Shares of the Company hereunder shall be made by the delivery to the Purchaser of Draw Down Notices as provided in ARTICLE VI hereof. The aggregate dollar amount of all Draw Down Amounts pursuant to the terms and conditions of this Agreement shall not exceed the Aggregate Limit.

Section 2.02 The Shares. The Company has or will have authorized and has or will have reserved, and covenants to continue to so reserve once reserved, free of preemptive rights and other similar contractual rights of stockholders, a sufficient number of its authorized but unissued Common Shares to cover the Shares to be issued in connection with all Draw Downs requested under this Agreement, and to be issued in connection with the exercise of the Warrant, prior to the issuance to the Purchaser of such Shares under this Agreement and the Warrant.

Section 2.03 Required Filings. If the Company is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, as soon as practicable, but in any event not later than 5:30 p.m. (New York City time) on the fourth Trading Day immediately following the Public Company Date, the Company shall file with the Commission a report on Form 8-K (or comparable disclosure) relating to the transactions contemplated by, and describing the material terms and conditions of the Transaction Documents and attaching copies of this Agreement and the Registration Rights Agreement (including all exhibits thereto, the "Current Report"); provided that the obligation to file the Current Report shall not be applicable if this Agreement and the Registration Rights Agreement were previously filed with the Commission. The Company shall provide the Purchaser a reasonable opportunity to comment on a draft of such Current Report, give due consideration to such comments, and not file the Current Report to the extent the Purchaser reasonably objects to the form or content thereof. Not later than 15 calendar days following the Effective Date, the Company shall file a Form D with respect to the securities hereunder in accordance with Regulation D and shall provide a copy thereof to the Purchaser promptly after such filing. The Company shall prepare and file the Registration Statement (including the Prospectus) covering the resale by the Purchaser of the registrable securities with the Commission in accordance with the provisions of the Securities Act and the Registration Rights Agreement. The Company shall file with the Commission in accordance with Rule 424(b) under the Securities Act the final Prospectus to be used in connection with resales pursuant to the Registration Statement no later than 8:30 a.m. (New York City time) on the first Draw Down Exercise Date. If the transactions contemplated by any Draw Down are material to the Company (individually or collectively with all other prior Draw Downs, the consummation of which have not previously been reported in any Prospectus Supplement filed with the Commission under Rule 424(b) under the Securities Act or in any report, statement or other document filed by the Company with the Commission under the Exchange Act), or if otherwise required under the Securities Act (or the interpretations of the Commission thereof), in each case as reasonably determined by the Company or the Purchaser, then, on the first Trading Day immediately following the last Trading Day of the

Draw Down Pricing Period with respect to such Draw Down, the Company shall file with the Commission a Prospectus Supplement pursuant to Rule 424(b) under the Securities Act with respect to the applicable Draw Down(s), disclosing the total Draw Down Amount Requested pursuant to such Draw Down(s), the total number of Shares that are to be (and, if applicable, have been) issued and sold to the Purchaser pursuant to such Draw Down(s), the total purchase price for the Shares subject to such Draw Down(s), the applicable discount price(s) for such Shares and the net proceeds that are to be (and, if applicable, have been) received by the Company from the sale of such Shares. To the extent not previously disclosed in the Prospectus or a Prospectus Supplement, the Company shall disclose in its Quarterly Reports on Form 10-Q and Annual Reports on Form 10-K the information described in the immediately preceding sentence relating to all Draw Down(s) consummated during the relevant fiscal quarter and fiscal year, as applicable, and include each such report in a Prospectus Supplement and file such Prospectus Supplement with the Commission under Rule 424(b) under the Securities Act.

Section 2.04 Effective Date; Settlement Dates. This Agreement shall become effective and binding (the "Closing") upon the delivery of counterpart signature pages of this Agreement, the Warrant and the Registration Rights Agreement executed by each of the parties hereto and thereto, and the delivery of all other documents, instruments and writings required to be delivered at the Closing, in each case as provided in ARTICLE V on the Effective Date. In consideration of and in express reliance upon the representations, warranties and covenants contained in, and upon the terms and subject to the conditions of, this Agreement, during the Investment Period the Company shall issue and sell to the Purchaser, and the Purchaser shall purchase from the Company, the Shares in respect of each Draw Down. The issuance and sale of Shares to the Purchaser pursuant to any Draw Down shall occur on the applicable Settlement Date in accordance with Section 6.01(d); *provided that* all of the conditions precedent thereto set forth in ARTICLE IV theretofore shall have been fulfilled on or prior to such Settlement Date.

ARTICLE III
REPRESENTATIONS AND WARRANTIES

Section 3.01 Representations and Warranties of the Company. The Company hereby makes the following representations and warranties to the Purchaser and GYBL as of the Effective Date, as of each Draw Down Exercise Date and as of each Settlement Date, except where the representation is expressly made only as of the Effective Date:

(a) Organization, Good Standing and Power. The Company is a limited liability company duly organized, validly existing and in good standing under the laws of its jurisdiction of organization and has the requisite limited liability company power and authority to own, lease and operate its properties and assets and to conduct its business as it is now being conducted. All Company Subsidiaries are duly formed, validly existing and in good standing under the laws of their respective jurisdictions of formation and have the requisite power and authority to own, lease and operate their respective properties and assets and to conduct their respective business as it is now being conducted. The Company and each of its Subsidiaries is duly qualified as a foreign corporation to do business and is in good standing in every jurisdiction in which the nature of the business conducted or property owned by it makes such qualification necessary, except where the failure to be so qualified, authorized or in good standing would not have a Material Adverse Effect.

(b) Authorization, Enforcement. The Company has the requisite limited liability company power and authority to enter into and perform this Agreement and each other Transaction Document and to issue and sell the Shares in accordance with the terms hereof. Except for approvals of the Company's Board of Directors or a committee thereof as may be required in connection with any issuance and sale of Shares to the Purchaser hereunder, the execution, delivery and performance of this Agreement and each other Transaction Document by the Company and the consummation by it of the transactions contemplated hereby have been duly and validly authorized by all necessary limited liability company action, and, except as contemplated by Section 2.02, no further consent or authorization of the Company or its Board of Directors or stockholders is required. This Agreement and each other Transaction Document has been duly executed and delivered by the Company. This Agreement and each other Transaction Document constitutes, or shall constitute when executed and delivered, a valid and binding obligation of the Company enforceable against the Company in accordance with its terms, except as such enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium, liquidation, conservatorship, receivership or similar laws relating to, or affecting generally the enforcement of, creditor's rights and remedies or by other equitable principles of general application.

(c) Capitalization. The authorized capital stock of the Company and the shares thereof issued and outstanding are or as of such date will be set forth in the Commission Documents. All of the Shares will be, and the outstanding Common Shares have been, duly and validly authorized, and are fully paid and non-assessable. Except as are or as of such date will be set forth in the Commission Documents, no holders of Shares or Common Shares are entitled to preemptive rights or registration rights, and there are no outstanding options, warrants, scrip, rights to subscribe to, call or commitments of any character whatsoever relating to, or securities or rights convertible into, any shares of capital stock of the Company. Furthermore, except as are or will be set forth in the Commission Documents, there are no contracts, commitments, understandings, or arrangements by which the Company is or may become bound to issue additional shares of the capital stock of the Company or options, securities or rights convertible into shares of capital stock of the Company. Except for customary transfer restrictions contained in agreements entered into by the Company in order to sell restricted securities, the Company is not a party to, and it has no Knowledge of, any agreement restricting the voting or transfer of any shares of the capital stock of the Company. The offer and sale of all capital stock, convertible securities, rights, warrants, or options of the Company complied in all material respects with all applicable federal and state securities laws, and no stockholder has a right of rescission or damages with respect thereto. Except as is or will be set forth in the Commission Documents, there are no securities or instruments containing anti-dilution or similar provisions that will be triggered by this Agreement or any of the other Transaction Documents or the consummation of the transactions described herein or therein. The Company has furnished or made available to the Purchaser true and correct copies of the Company's Limited Liability Company Agreement as in effect on the Effective Date (the "Certificate") and bylaws as in effect on the Effective Date (the "Bylaws").

(d) Issuance of Shares. The Shares to be issued under this Agreement and the Warrant have been or will be (prior to issuance to the Purchaser or GYBL hereunder) duly authorized by all necessary limited liability company action and, when paid for or issued in accordance with the terms hereof, the Shares shall be validly issued and outstanding, fully paid and nonassessable, and the Purchaser shall be entitled to all rights accorded to a holder of Common Shares.

(e) No Conflicts. The execution, delivery and performance of this Agreement and each other Transaction Document by the Company and the consummation by the Company of the transactions contemplated herein do not (i) violate any provision of the Company's Certificate or Bylaws, (ii) conflict with, result in a breach or violation of any of the terms or provisions of, or constitute a default (or an event which with notice or lapse of time or both would become a default) under, or give to others any rights of termination, amendment, acceleration or cancellation of, any material agreement, mortgage, deed of trust, indenture, note, bond, license, lease agreement, instrument or obligation to which the Company is a party or is bound, (iii) create or impose a lien, charge or encumbrance on any property or assets of the Company under any agreement or any commitment to which the Company is a party or by which the Company is bound or by which any of its respective properties or assets are bound, or (iv) result in a violation of any federal, state, local or foreign statute, rule, regulation, order, judgment or decree (including federal and state securities laws and regulations) applicable to the Company or by which any property or asset of the Company are bound or affected. The Company is not required under federal, state or local law, rule or regulation to obtain any consent, authorization or order of, or make any filing or registration with, any court or governmental agency in order for it to execute, deliver or perform any of its obligations under this Agreement and each other Transaction Document, or issue and sell the Shares to the Purchaser in accordance with the terms hereof (other than any filings which may be required to be made by the Company with the Commission or the Principal Market subsequent to the Effective Date, including the Registration Statement and any registration statement, amendment, prospectus or prospectus supplement which may be filed pursuant hereto); *provided, however*, that, for purposes of the representation made in this sentence, the Company is assuming and relying upon the accuracy of the representations, warranties and agreements of the Purchaser herein.

(f) Commission Documents, Financial Statements. If and during the period that the Company is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, the Company has timely filed all Commission Documents (giving effect to permissible extensions in accordance with Rule 12b-25 under the Exchange Act). The Company has not provided to the Purchaser any information which, according to applicable law, rule or regulation, should have been disclosed publicly by the Company but which has not been so disclosed, other than with respect to the transactions contemplated by this Agreement and the other Transaction Documents. As of their respective filing dates, the Commission Documents complied in all material respects with the requirements of the Exchange Act and other federal, state and local laws, rules and regulations applicable to them, and, as of their respective dates, the Commission Documents did not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The financial statements of the Company included in the Commission Documents comply as to form in all material respects with applicable accounting requirements and the published rules and regulations of the Commission or other applicable rules and regulations with respect thereto. Such financial statements have been prepared in accordance with GAAP applied on a consistent basis during the periods involved (except (i) as may be otherwise indicated in such financial statements or the notes thereto or (ii) in the case of unaudited interim statements, to the extent they may not include footnotes or may be condensed or summary statements), and fairly present in all material respects the financial position of the Company as of the dates thereof and the results of operations and cash flows for the periods then ended (subject, in the case of unaudited statements, to normal year-end audit adjustments).

(g) No Material Adverse Effect. No Material Adverse Effect has occurred or exists with respect to the Company.

(h) No Undisclosed Liabilities. The Company has no liabilities, obligations, claims or losses (whether liquidated or unliquidated, secured or unsecured, absolute, accrued, contingent or otherwise) that would be required to be disclosed on a balance sheet of the Company or any Subsidiary (including the notes thereto) in conformity with GAAP and are not disclosed in the Commission Documents other than liabilities incurred in the ordinary course of business since the date of such Commission Documents which, individually and in the aggregate, are not material to the Company's business.

(i) No Undisclosed Events or Circumstances. No event or circumstance has occurred or exists with respect to the Company or its businesses, properties, prospects, operations or financial condition, which, under applicable law, rule or regulation, requires public disclosure or announcement by the Company but which has not been so publicly announced or disclosed.

(j) Indebtedness. The Company has not outstanding secured or unsecured Indebtedness of the Company, or for which the Company has commitments through such date. For the purposes of this Agreement, "Indebtedness" shall mean (a) any liabilities for borrowed money or amounts owed in excess of $1,000,000 (other than trade accounts payable incurred in the ordinary course of business), (b) all guaranties, endorsements, indemnities and other contingent obligations in respect of Indebtedness of others in excess of $1,000,000, whether or not the same are or should be reflected in the Company's balance sheet (or the notes thereto), except guaranties by endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business; and (c) the present value of any lease payments in excess of $1,000,000 due under leases required to be capitalized in accordance with GAAP. The Company is not in default with respect to any Indebtedness. The Company has not taken any steps, and does not currently expect to take any steps, to seek protection pursuant to Title 11 of the United States Code, or other similar federal or state or other applicable bankruptcy law or law for the relief of debtors, nor does the Company have any Knowledge that its creditors intend to initiate involuntary bankruptcy, insolvency, reorganization or liquidation proceedings or other proceedings for relief under any such bankruptcy law or law for the relief of debtors. The Company is financially solvent and is generally able to pay its debts as they become due.

(k) Title to Assets. Except as set forth in the Commission Documents, the Company has good, valid and marketable title to all of its real and personal property reflected in the Commission Documents, free of any Liens, except for those that would not reasonably be expected to have a Material Adverse Effect. All said real property leases of the Company are valid and subsisting and in full force and effect in all material respects.

(l) Actions Pending. There is no action, suit, claim, investigation or proceeding pending or, to the Knowledge of the Company, threatened against the Company or any Subsidiary which questions the validity of this Agreement or any other Transaction Document or the transactions contemplated hereby or thereby or any action taken or to be taken pursuant hereto or thereto. There is no action, suit, claim, investigation or proceeding pending or, to the Knowledge of the Company, threatened, against or involving the Company, any Subsidiary or any of their respective properties or assets, or involving any officers or directors of the Company or any Subsidiary, including, without limitation, any securities class action lawsuit or stockholder

derivative lawsuit related to the Company. No judgment, order, writ, injunction or decree or award has been issued by or, to the Knowledge of the Company, requested of any court, arbitrator or governmental agency.

(m) Compliance with Law. The business of the Company has been and is presently being conducted in all material respects in accordance with all applicable federal, state and local governmental laws, rules, regulations and ordinances. The Company has all material franchises, permits, licenses, consents and other governmental or regulatory authorizations and approvals necessary for the conduct of its business as now being conducted by it. The Company is not in violation of any material judgment, decree or order or any statute, ordinance, rule or regulation applicable to the Company, and the Company will not conduct its business in violation of any of the foregoing.

(n) Certain Fees. No brokers, finders or financial advisory fees or commissions will be payable by the Company or any Subsidiary with respect to the transactions contemplated by this Agreement and the other Transaction Documents.

(o) Disclosure. Neither this Agreement (including the Schedules hereto) nor any other Transaction Document nor the Commission Documents, if any, or any other documents, certificates or instruments furnished to the Purchaser by or on behalf of the Company or any Subsidiary in connection with the transactions contemplated by this Agreement and the other Transaction Documents contains any untrue statement of a material fact or omits to state a material fact necessary in order to make the statements made herein or therein, in the light of the circumstances under which they were made herein or therein, not misleading. The Company confirms that neither it, nor any other Person acting on its behalf, has provided the Purchaser or any of its agents, advisors or counsel with any information that constitutes or could reasonably be expected to constitute material, nonpublic information concerning the Company, other than the existence of the transactions contemplated by the Transaction Documents, except pursuant to a confidentiality and non-disclosure agreement.

(p) Operation of Business. The Company owns or controls all patents, trademarks, service marks, trade names, copyrights, licenses and authorizations of the Company as set forth in the Commission Documents, and all rights with respect to the foregoing, which are reasonably necessary for the conduct of its business as now conducted without, to the Company's Knowledge, any conflict with the rights of others. The Company possesses such permits, licenses, approvals, consents and other authorizations (including licenses, accreditation and other similar documentation or approvals of any local health departments) issued by the appropriate federal, state, local or foreign regulatory agencies or bodies as are necessary to conduct the business now operated by it (collectively, "Governmental Licenses"). The Company is in compliance with the terms and conditions of all such Governmental Licenses, except as otherwise disclosed in the Commission Documents. All of the Governmental Licenses are valid and in full force and effect, except as otherwise disclosed in the Commission Documents. Except as set forth in the Commission Documents, the Company has not received any written notice of proceedings relating to the revocation or modification of any such Governmental Licenses.

(q) Environmental Compliance. Except as disclosed in the Commission Documents, the Company has obtained all material approvals, authorization, certificates, consents, licenses, orders and permits or other similar authorizations of all governmental authorities, or from any

other Person, that are required under any Environmental Laws. "Environmental Laws" shall mean all applicable laws relating to the protection of the environment including, without limitation, all requirements pertaining to reporting, licensing, permitting, controlling, investigating or remediating emissions, discharges, releases or threatened releases of hazardous substances, chemical substances, pollutants, contaminants or toxic substances, materials or wastes, whether solid, liquid or gaseous in nature, into the air, surface water, groundwater or land, or relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport or handling of hazardous substances, chemical substances, pollutants, contaminants or toxic substances, material or wastes, whether solid, liquid or gaseous in nature. To the Company's Knowledge, there are no past or present events, conditions, circumstances, incidents, actions or omissions relating to or in any way affecting the Company that violate or would reasonably be expected to violate any Environmental Law after the Effective Date or that would reasonably be expected to give rise to any environmental liability, or otherwise form the basis of any claim, action, demand, suit, proceeding, hearing, study or investigation (i) under any Environmental Law, or (ii) based on or related to the manufacture, processing, distribution, use, treatment, storage (including, without limitation, underground storage tanks), disposal, transport or handling, or the emission, discharge, release or threatened release of any hazardous substance.

(r) Material Agreements. The Company is not a party to any material written or oral contract, instrument, agreement, commitment, obligation, plan or arrangement, a copy of which would be required to be filed with the Commission as an exhibit to an annual report on Form 10-K (collectively, "Material Agreements") which has not been furnished or disclosed to the Purchaser or filed in the Commission Documents. The Company has in all material respects performed all of the obligations required to be performed by it to date under the Material Agreements, has received no notice of default by the Company thereunder and, to the Company's Knowledge, is not in default under any Material Agreement now in effect.

(s) Transactions with Affiliates. Except as set forth in the Commission Documents, there are no loans, leases, agreements, contracts, royalty agreements, management contracts or arrangements or other continuing transactions exceeding $120,000 between (a) the Company, on the one hand, and (b) any Person who would be covered by Item 404(a) of Regulation S-K, on the other hand. Except as disclosed in the Commission Documents, there are no outstanding amounts payable to or receivable from, or advances by the Company to, and the Company is not otherwise a creditor of or debtor to, any beneficial owner of more than five percent (5%) of the outstanding Common Shares, or any director, employee or Affiliate of the Company, other than (i) reimbursement for reasonable expenses incurred on behalf of the Company or (ii) as part of the normal and customary terms of such person's employment or service as a director with the Company.

(t) Securities Act. The Company has complied and will comply in all material respects with all applicable federal and state securities laws in connection with the offer, issuance and sale of the Shares hereunder. The Registration Statement, on the date it is filed with the Commission, on the date it is declared effective by the Commission (or becomes effective pursuant to Section 8 of the Securities Act), on each Draw Down Exercise Date and on each Settlement Date, shall comply in all material respects with the requirements of the Securities Act (including, without limitation, Rule 415 under the Securities Act) and shall not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to

make the statements therein not misleading, except that this representation and warranty shall not apply to statements in or omissions from the Registration Statement made in reliance upon and in conformity with information relating to the Purchaser furnished to the Company in writing by or on behalf of the Purchaser expressly for use therein. The Prospectus and each Prospectus Supplement required to be filed pursuant to this Agreement or the Registration Rights Agreement after the Effective Date, when taken together, on its date, on each Draw Down Exercise Date and on each Settlement Date, shall comply in all material respects with the requirements of the Securities Act (including, without limitation, Rule 424(b) under the Securities Act) and shall not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading, except that this representation and warranty shall not apply to statements in or omissions from the Prospectus or any Prospectus Supplement made in reliance upon and in conformity with information relating to the Purchaser furnished to the Company in writing by or on behalf of the Purchaser expressly for use therein. Each Commission Document (other than the Registration Statement, the Prospectus or any Prospectus Supplement) to be filed with or furnished to the Commission after the Effective Date and incorporated by reference in the Registration Statement, the Prospectus or any Prospectus Supplement required to be filed pursuant to this Agreement or the Registration Rights Agreement (including, without limitation, the Current Report), when such document is filed with or furnished to the Commission and, if applicable, when such document becomes effective, as the case may be, shall comply in all material respects with the requirements of the Securities Act or the Exchange Act, as applicable, and other federal, state and local laws, rules and regulations applicable to it, and shall not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary in order to make the statements therein, in light of the circumstances under which they were made, not misleading. The Company has delivered or made available to the Purchaser via EDGAR or otherwise true and complete copies of all comment letters and substantive correspondence received by the Company from the Commission relating to the Commission Documents filed with or furnished to the Commission as of the Effective Date, together with all written responses of the Company thereto in the form such responses were filed via EDGAR. There are no outstanding or unresolved comments or undertakings in such comment letters received by the Company from the Commission. The Commission has not issued any stop order or other order suspending the effectiveness of any registration statement filed by the Company under the Securities Act or the Exchange Act. The Company has not distributed and, prior to the completion of the distribution of the Shares, will not distribute any offering material in connection with the offering and sale of the Shares other than the Registration Statement, the related prospectus or other materials, if any, permitted by the Securities Act.

(u) Employees. The Company does not have any collective bargaining arrangements or other agreements covering any of its employees. Except as disclosed in the Commission Documents, no Executive Officer of the Company has terminated or, to the Knowledge of the Company, has any present intention of terminating his or her employment or engagement with the Company.

(v) Use of Proceeds. The proceeds from the sale of the Shares will be used by the Company for general corporate purposes and other working capital needs of the Company.

(w) Investment Company Act Status. The Company is not, and as a result of the consummation of the transactions contemplated by the Transaction Documents and the application of the proceeds from the sale of the Shares as set forth in the Prospectus and the Prospectus Supplement shall not be required to be registered as, an "investment company" or a company "controlled" by an "investment company," within the meaning of the Investment Company Act of 1940, as amended.

(x) ERISA. No liability has been incurred with respect to any Plan by the Company. No "prohibited transaction" (as defined in Section 406 of ERISA or Section 4975 of the Code) or "accumulated funding deficiency" (as defined in Section 302 of ERISA) or any of the events set forth in Section 4043(b) of ERISA has occurred with respect to any Plan, and the execution and delivery of this Agreement and the issuance and sale of the securities hereunder shall not result in any of the foregoing events. Each Plan is in compliance in all material respects with applicable law, including ERISA and the Code; the Company has not incurred and does not expect to incur liability under Title IV of ERISA with respect to the termination of, or withdrawal from, any Plan; and each Plan for which the Company would have any liability that is intended to be qualified under Section 401(a) of the Code is so qualified in all material respects and nothing has occurred, whether by action or failure to act, which would cause the loss of such qualifications. As used in this Section 3.01(x), the term "Plan" shall mean an "employee pension benefit plan" (as defined in Section 3 of ERISA) which is or has been established or maintained, or to which contributions are or have been made, by the Company or any Subsidiary or by any trade or business, whether or not incorporated, which, together with the Company or any Subsidiary, is under common control, as described in Section 414(b) or (c) of the Code.

(y) Taxes. The Company (i) has filed all necessary federal, state and foreign income and franchise tax returns or has duly requested extensions thereof, (ii) has paid all federal, state, local and foreign taxes due and payable for which it is liable, except to the extent that any such taxes are being contested in good faith and by appropriate proceedings, and (iii) does not have any tax deficiency or claims outstanding or assessed or, to the Company's Knowledge, proposed against it. There are no unpaid taxes in any material amount claimed to be due by the taxing authority of any jurisdiction, and the officers of the Company know of no basis for any such claim. The Company is not operated in such a manner as to qualify as a "passive foreign investment company" as defined in Section 1297 of the Code.

(z) Insurance. The Company is insured by insurers of recognized financial responsibility against such losses and risks and in such amounts as management of the Company believes to be prudent and customary in the businesses in which the Company is engaged. The Company has not been refused any insurance coverage sought or applied for, and the Company has no reason to believe that it will be unable to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business.

(aa) U.S. Real Property Holding Corporation. The Company is not, nor has it ever been, and so long as any of the securities are held by the Purchaser, shall not become a U.S. real property holding corporation within the meaning of Section 897 of the Code.

(bb) Exemption from Registration; Valid Issuances. Subject to, and in reliance on, the representations, warranties and covenants made herein by the Purchaser, the offer and sale of the

Shares in accordance with the terms and conditions of this Agreement is exempt from the registration requirements of the Securities Act pursuant to Section 4(a)(2) and Rule 506 of Regulation D; *provided, however*, that at the request of and with the express agreement of the Purchaser, the Shares will be delivered to the Purchaser via book entry through the Depository Trust Company and will not bear legends noting restrictions as to resale of such securities under federal or state securities laws, nor will any such securities be subject to stop transfer instructions. Neither the offer and sale of the Shares pursuant to, nor the Company's performance of its obligations under, the Transaction Documents to which it is a party shall (i) result in the creation or imposition of any Liens upon the Shares, or (ii) entitle the holders of any outstanding shares of capital stock of the Company to preemptive or other rights to subscribe to or acquire Common Shares or other securities of the Company.

(cc) No General Solicitation or Advertising. Neither the Company, nor any of its Affiliates, nor any Person acting on its or their behalf, has engaged in any form of general solicitation or general advertising (within the meaning of Regulation D) in connection with the offer or sale of the Shares.

(dd) No Integrated Offering. None of the Company or any of its Affiliates, nor any Person acting on their behalf has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under circumstances that would require registration of the issuance of any of the Shares under the Securities Act, whether through integration with prior offerings or otherwise, or cause this offering of the Shares to require approval of stockholders of the Company under any applicable stockholder approval provisions, including, without limitation, under the rules and regulations of the Commission and the Principal Market. None of the Company, nor its Affiliates, nor any Person acting on their behalf will take any action or steps referred to in the preceding sentence that would require registration of the issuance of any of the securities under the Securities Act or cause the offering of any of the Shares to be integrated with other offerings.

(ee) Manipulation of Price. Neither the Company nor any of its officers, directors or Affiliates has, and, to the Knowledge of the Company, no Person acting on their behalf has, (i) taken, directly or indirectly, any action designed or intended to cause or to result in the stabilization or manipulation of the price of any security of the Company, or which caused or resulted in, or which would in the future reasonably be expected to cause or result in, the stabilization or manipulation of the price of any security of the Company, in each case to facilitate the sale or resale of any of the Shares, or (ii) sold, bid for, purchased, or paid any compensation for soliciting purchases of, any of the Shares. Neither the Company nor any of its officers, directors or Affiliates will, during the term of this Agreement, and, to the Knowledge of the Company, no Person acting on their behalf will, during the term of this Agreement, take any of the actions referred to in the immediately preceding sentence.

(ff) Foreign Corrupt Practices Act. None of the Company, any Subsidiary or, to the Knowledge of the Company, any director, officer, agent, employee, Affiliate or other Person acting on behalf of the Company, is aware of or has taken any action, directly or indirectly, that would result in a violation by such Persons of the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (collectively, the "FCPA"), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of any money, or

other property, gift, promise to give, or authorization of the giving of anything of value to any "foreign official" (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA. The Company has conducted its business in compliance with the FCPA.

(gg) Money Laundering Laws. The operations of the Company is and has been conducted at all times in compliance with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the "Money Laundering Laws") and, to the Knowledge of the Company, no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company with respect to the Money Laundering Laws is pending or threatened.

(hh) OFAC. None of the Company or, to the Knowledge of the Company, any director, officer, agent, employee, Affiliate or Person acting on behalf of the Company is currently subject to any U.S. sanctions administered by the Office of Foreign Assets Control of the U.S. Treasury Department ("OFAC"); and the Company will not directly or indirectly use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any Subsidiary, joint venture partner or other Person, for the purpose of financing the activities of any Person currently subject to any U.S. sanctions administered by OFAC.

(ii) Acknowledgement Regarding Purchaser's Purchase of Shares. The Company acknowledges and agrees that the Purchaser is acting solely in the capacity of an arm's length purchaser with respect to this Agreement and the other Transaction Documents and the transactions contemplated hereunder and thereunder. The Company further acknowledges that the Purchaser is not acting as a financial advisor or fiduciary of the Company (or in any similar capacity) with respect to this Agreement and the other Transaction Documents and the transactions contemplated hereunder and thereunder, and any advice given by the Purchaser or any of its representatives or agents in connection with this Agreement and the other Transaction Documents and the transactions contemplated hereunder and thereunder is merely incidental to the Purchaser's purchase of the Shares.

Section 3.02 Representatives and Warranties of the Purchaser. The Purchaser and GYBL hereby make the following representations and warranties to the Company as of the Effective Date and as of the date of each Draw Down Notice and as of each Settlement Date:

(a) Organization and Standing of the Purchaser and GYBL. The Purchaser is a "société en commandite simple" duly formed, validly existing and in good standing under the laws of Luxembourg. GYBL is a limited company duly formed, validly existing and in good standing under the laws of the Commonwealth of the Bahamas.

(b) Authorization and Power. Each of the Purchaser and GYBL has the requisite corporate power and authority to enter into and perform this Agreement and the other Transaction Documents to which it is a party and to purchase the Shares in accordance with the terms hereof. The execution, delivery and performance of this Agreement and the other Transaction Documents to which it is a party by Purchaser and by GYBL and the consummation by it of the transactions

contemplated hereby have been duly authorized by all necessary corporate action, and no further consent or authorization of the Purchaser and GYBL, and the Board of Directors or stockholders of either of them is required. This Agreement and each other Transaction Document to which the Purchaser or GYBL is a party has been duly executed and delivered by each of the Purchaser and GYBL. This Agreement and each other Transaction Document to which the Purchaser or GYBL is a party constitutes, or shall constitute when executed and delivered, a valid and binding obligation of the Purchaser or GYBL, enforceable against the Purchaser or GYBL, respectively, in accordance with its terms, except as such enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium, liquidation, conservatorship, receivership, or similar laws relating to, or affecting generally the enforcement of, creditor's rights and remedies or by other equitable principles of general application.

(c) No Conflicts. The execution, delivery and performance of this Agreement and each other Transaction Document to which the Purchaser or GYBL is a party, and the consummation by the Purchaser and GYBL of the transactions contemplated hereby and thereby or relating hereto or thereto, do not and will not (i) result in a violation of such Purchaser's or GYBL's charter documents or bylaws or (ii) conflict with, or constitute a default (or an event which with notice or lapse of time or both would become a default) under, or give to others any rights of termination, amendment, acceleration or cancellation of, any material agreement, mortgage, deed of trust, indenture, note, bond, license, lease agreement, instrument or obligation to which the Purchaser or GYBL is a party, (iii) create or impose a lien, charge or encumbrance on any property of the Purchaser or GYBL under any agreement or any commitment to which the Purchaser or GYBL is party or by which the Purchaser or GYBL is bound or by which any of their respective properties or assets are bound, or (iv) result in a violation of any law, rule, or regulation, or any order, judgment or decree of any court or governmental agency applicable to the Purchaser or GYBL or any of their respective properties, except for such conflicts, defaults and violations as would not, individually or in the aggregate, prohibit or otherwise interfere with the ability of the Purchaser or GYBL to enter into and perform its obligations under this Agreement or any other Transaction Document to which the Purchaser or GYBL is a party in any material respect. Neither the Purchaser nor GYBL is required to obtain any consent, authorization or order of, or make any filing or registration with, any court or governmental agency in order for it to execute, deliver or perform any of its obligations under this Agreement or any other Transaction Document to which the Purchaser is a party or to purchase the Shares in accordance with the terms hereof; *provided, however*, that for purposes of the representation made in this sentence, each of the Purchaser and GYBL is assuming and relying upon the accuracy of the representations, warranties and agreements of the Company herein.

(d) Accredited Investor. Each of the Purchaser and GYBL is an institutional "accredited investor" as defined in Regulation D promulgated under the Securities Act.

(e) Financial Risks. Each of the Purchaser and GYBL acknowledges that it is able to bear the financial risks associated with an investment in the Shares. Each of the Purchaser and GYBL is capable of evaluating the risks and merits of an investment in the Shares by virtue of its experience as an investor and its knowledge, experience, and sophistication in financial and business matters, and each of the Purchaser and GYBL is capable of bearing the entire loss of its investment in the Shares.

(f) Information. The Purchaser and GYBL and their respective advisors, if any, have been furnished with all materials relating to the business, finances and operations of the Company and materials relating to the offer and sale of the Shares which have been requested by the Purchaser or GYBL. The Purchaser and GYBL and their respective advisors, if any, have been afforded the opportunity to ask questions of the Company. The Purchaser and GYBL have sought such accounting, legal and tax advice as it has considered necessary to make an informed investment decision with respect to its acquisition of the Shares. The Purchaser and GYBL understand that they (and not the Company) shall be responsible for their own respective tax liabilities that may arise as a result of this investment or the transactions contemplated by this Agreement and the other Transaction Documents to which the Purchaser or GYBL is a party

(g) No General Solicitation or Advertising. Neither Purchaser, GYBL nor any of their respective Affiliates, nor any Person acting on its or their behalf, has engaged in any form of general solicitation or general advertising (within the meaning of Regulation D) in connection with the offer or sale of the Shares by the Company to the Purchaser.

(h) No Disqualifying Events. Neither Purchaser, GYBL, nor any of their respective directors, executive officers, other officers participating in the transactions contemplated under this Agreement, general partners or managing members, nor any of the directors, executive officers or other officers participating in the transactions contemplated under this Agreement of any such general partner or managing member, nor any other officers or employees of Purchaser, GYBL or any such general partner or managing member that have been or will be paid (directly or indirectly) remuneration for solicitation of purchasers in connection with the transactions contemplated under this Agreement, is subject to any of the "bad actor" disqualifications described in Rule 506(d)(1) under the Securities Act.

(i) Manipulation of Price. Neither Purchaser, GYBL nor any of their respective officers, directors or Affiliates has, and, to their knowledge, no Person acting on their behalf has, (i) taken, directly or indirectly, any action designed or intended to cause or to result in the stabilization or manipulation of the price of any security of the Company, or which caused or resulted in, or which would in the future reasonably be expected to cause or result in, the stabilization or manipulation of the price of any security of the Company, in each case to facilitate the sale or resale of any of the Shares, or (ii) sold, bid for, purchased, or paid any compensation for soliciting purchases of, any of the Shares. Neither Purchaser, GYBL nor any of their officers, directors or Affiliates will, during the term of this Agreement, and, to their knowledge, no Person acting on their behalf will, during the term of this Agreement, take any of the actions referred to in the immediately preceding sentence.

ARTICLE IV
COVENANTS

The Company covenants with the Purchaser and GYBL, and the Purchaser and GYBL together covenant with the Company, as follows, which covenants of one party are for the benefit of the other party.

Section 4.01 Securities Compliance. The Company shall notify the Commission and the Principal Market, if applicable, in accordance with their rules and regulations, of the transactions contemplated by this Agreement and each other Transaction Document, and shall take all other

necessary action and proceedings as may be required and permitted by applicable law, rule and regulation, for the legal and valid issuance of the Shares to the Purchaser and GYBL. The Company shall take such action, if any, as is reasonably necessary in order to obtain an exemption for or to qualify any subsequent resale of the Shares by the Purchaser and GYBL, in each case, under applicable securities or "Blue Sky" laws of the states of the United States of America in such states as is reasonably requested by the Purchaser or GYBL from time to time, and shall provide evidence of any such action so taken to the Purchaser.

Section 4.02 Registration and Listing. Once subject to the reporting requirements of the Exchange Act, the Company will take all action necessary to cause the Shares to be registered under Sections 12(b) or 12(g) of the Exchange Act, will comply in all material respects with its reporting and filing obligations under the Exchange Act and take all action necessary to maintain compliance with such reporting and filing obligations, and will not take any action or file any document (whether or not permitted by the Securities Act) to terminate or suspend such registration or to terminate or suspend its reporting and filing obligations under the Exchange Act or Securities Act, except as permitted herein. The Company will take all action necessary to effect the listing or trading of its Common Shares and the listing of the Shares purchased by Purchaser hereunder on the Principal Market or any relevant market or system, if applicable, and will comply in all respects with the Company's reporting, filing and other obligations under the bylaws or rules of the Principal Market or any relevant market or system.

Section 4.03 Registration Rights Agreement. The Company, the Purchaser and GYBL shall enter into the Registration Rights Agreement with respect to the Shares, dated the Effective Date, in the form of Exhibit A attached hereto.

Section 4.04 Compliance with Laws.

(a) The Company shall comply with all applicable laws, rules, regulations and orders applicable to the business and operations of the Company and with all applicable provisions of the Securities Act and the Exchange Act and the rules and regulations of the Principal Market (including, without limitation, Rule 415(a)(4) under the Securities Act).

(b) The Purchaser and GYBL shall comply in all material respects with all applicable laws, rules, regulations and orders in connection with this Agreement and each other Transaction Document and the transactions contemplated hereby and thereby. Without limiting the foregoing the Purchaser and GYBL shall comply with the requirements of the Securities Act and the Exchange Act including, without limitation, Rule 415(a)(4) under the Securities Act and Rule 10b-5 and Regulation M under the Exchange Act, where applicable.

Section 4.05 Keeping of Records and Books of Account. The Company shall keep and cause each Subsidiary to keep adequate records and books of account, in which complete entries will be made in accordance with GAAP consistently applied, reflecting all financial transactions of the Company, and in which, for each fiscal year, all proper reserves for depreciation, depletion, obsolescence, amortization, taxes, bad debts and other purposes in connection with its business shall be made.

Section 4.06 Limitations on Holdings and Issuances. Notwithstanding anything in this Agreement, at no time while the Company is subject to the reporting requirements of Section 13

or 15(d) of the Exchange Act may the Company issue, and at no time shall the Purchaser be obligated to purchase, any Shares which would result in the Purchaser beneficially owning, directly or indirectly, at the time of such proposed issuance, more than 9.99% of the number of Common Shares issued and outstanding as of the date of such proposed issuance; *provided, however*, that upon the Purchaser providing the Company with sixty-one (61) days' notice (pursuant to Section 9.04 hereof) (the "Waiver Notice") that the Purchaser would like to waive this Section 4.06 with regard to any or all Shares issuable pursuant to this Agreement, this Section 4.06 will be of no force or effect with regard to all or a portion of the Shares referenced in the Waiver Notice until the date that the Purchaser notifies the Company (pursuant to Section 9.04 hereof) that the Purchaser revokes the Waiver Notice; *provided, further*, that during the sixty-one (61) day period prior to the expiration of the Investment Period, the Purchaser may waive this Section 4.06 by providing a Waiver Notice at any time during such sixty-one (61) day period.

Section 4.07 Registration Statement. Subject to the terms and conditions in the Registration Rights Agreement, the Company shall cause the Registration Statement to be filed and seek that it be declared effective pursuant to the Registration Rights Agreement. The Registration Statement shall register with the Commission the Shares to be issued under the Draw Downs and the Warrant Shares. The Purchaser shall not be obligated to accept a Draw Down request from the Company unless the Registration Statement is then effective and the Prospectus included in the Registration Statement is then current and in compliance with all applicable rules of the Commission and the Principal Market.

Section 4.08 Other Agreements and Other Financings. The Company shall not enter into any agreement in which the terms of such agreement would restrict or impair the Company's ability to perform any of its obligations under this Agreement or any other Transaction Document.

(a) The Company shall not enter into any agreement, the principal purpose of which is to secure an "equity line" similar to the financing provided for under this Agreement (which, for the avoidance of doubt, shall not include an at-the-market offering program) during the Investment Period without the Purchaser's prior written consent, which shall be at the Purchaser's sole discretion.

(b) The Company shall provide notice to the Purchaser of the Company's intention to engage in any Alternate Transaction. For all purposes of this Agreement, an "Alternate Transaction" shall mean (w) the issuance of Common Shares for a purchase price less than, or the issuance of securities convertible into or exchangeable for Common Shares at an exercise or conversion price (as the case may be) less than, the then-current market price of the Common Shares, respectively (including, without limitation, pursuant to any "equity line" or other financing that is substantially similar to the financing provided for under this Agreement, or pursuant to any other transaction in which the purchase, conversion or exchange price for such Common Shares is determined using a floating discount or other post-issuance adjustable discount to the then-current market price), in each case, after all fees, discounts, warrant value and commissions associated with the transaction; (x) an "at-the-market" offering of Common Shares or securities convertible into or exchangeable for Common Shares pursuant to Rule 415(a)(4) under the Securities Act; (y) the implementation by the Company of any mechanism in respect of any securities convertible into or exchangeable for Common Shares providing for a material portion of the purchase price of the Common Shares to be below the then-current market price of the Common Shares (including, without limitation, any anti-dilution or similar adjustment provisions in respect of any Company

securities, but specifically excluding customary anti-dilution adjustments for stock splits, dividends, combinations, recapitalizations, reclassifications and similar events); or (z) the issuance of options, warrants or similar rights of subscription or the issuance of convertible equity or debt securities other than options issued pursuant to an employee compensation arrangement.

Section 4.09 Stop Orders. During the Investment Period, the Company shall use its best efforts to maintain the continuous effectiveness of the Registration Statement under the Securities Act. The Company will advise the Purchaser and GYBL promptly and, if requested by the Purchaser or GYBL, will confirm such advice in writing: (i) of the Company's receipt of notice of any request by the Commission for amendment of or a supplement to the Registration Statement, any related prospectus or for additional information; (ii) of the Company's receipt of notice of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or of the suspension of qualification of the Shares for offering or sale in any jurisdiction or the initiation of any proceeding for such purpose; and (iii) of the Company becoming aware of the happening of any event, which makes any statement of a material fact made in the Registration Statement (as then amended or supplemented) untrue or which requires the making of any additions to or changes in the Registration Statement (as then amended or supplemented) in order to state a material fact required by the Securities Act to be stated therein or necessary in order to make the statements therein not misleading (*provided that* in no event shall such notice contain any material, non-public information regarding the Company). If at any time the Commission shall issue any stop order suspending the effectiveness of the Registration Statement, the Company will make commercially reasonable efforts to obtain the withdrawal of such order at the earliest possible time.

Section 4.10 Selling Restrictions; Volume Limitations.

(a) The Purchaser covenants that during the Investment Period neither the Purchaser, GYBL, nor any of their Affiliates nor any entity managed or controlled by the Purchaser or GBYL will, directly or indirectly, sell any securities of the Company except the Shares that it owns or has the right to purchase pursuant to the provisions of a Draw Down Notice or the Warrant. During the Investment Period, neither the Purchaser, GYBL, nor any of their Affiliates nor any entity managed or controlled by the Purchaser or GYBL will enter into a short position, engage in any short sales or equivalent transactions, establish or increase a put equivalent position or liquidate or decrease any call equivalent position with respect to the Common Shares, including in any account of the Purchaser or GYBL or in any account directly or indirectly managed by the Purchaser or GYBL or any Affiliate of the Purchaser or GYBL or any entity managed by the Purchaser or GYBL, or take, directly or indirectly, any action designed or intended to cause the manipulation of the price of the Common Shares to facilitate the sale or resale of any of the Shares. During the Investment Period, the Purchaser shall not grant any option to purchase or acquire any right to dispose or otherwise dispose for value of any Common Shares, or any securities convertible into, or exchangeable for, or warrants to purchase, any Common Shares, respectively, or enter into any swap, hedge or other agreement that transfers, in whole or in part, the economic risk of ownership of the Common Shares, except for Shares that it has the right to purchase pursuant to the provisions of a Draw Down Notice or the Warrant. In addition, during the Investment Period and on a daily Trading Day basis, the Purchaser and GYBL agrees to restrict the volume of sales of Shares by the Purchaser, GYBL, their Affiliates and any entity managed by the Purchaser or GYBL to no more than 1/30th of the Shares purchased pursuant to any Draw Down Notice.

(b) In addition to the foregoing, in connection with any sale of the Company's securities, the Purchaser and GYBL shall comply in all material respects with all applicable laws, rules, regulations and orders, including, without limitation, the requirements of the Securities Act and the Exchange Act, including, without limitation, Rule 415(a)(4) under the Securities Act and Regulation M and Rule 10b-5 under the Exchange Act, where applicable.

Section 4.11 Non-Public Information. From the Investment Period and until the later of (i) the term of the Agreement and (ii) such time as Purchaser or GYBL no longer hold any Shares, none of the Company, nor any of its directors, officers or agents shall disclose any material non-public information about the Company to the Purchaser or GYBL.

Section 4.12 Commitment Fee; Warrant.

(a) The Company shall tender to GYBL, as a commitment fee, an amount equal to 2% of the Aggregate Limit (the "Commitment Fee"), deliverable as set forth below. The Commitment Fee due upon each Draw Down may be paid in cash from the proceeds of such Draw Down or in freely tradeable Common Shares of the Company valued at the Daily Closing Price at the time of such Draw Down, at the option of the Company. The amount of the Commitment Fee due in each such installment shall be the product obtained by multiplying (i) the total amount of the Commitment Fee by (ii) the quotient derived by dividing (y) the value of Shares purchased pursuant to the applicable Draw Down by (z) the Aggregate Limit. To the extent that any amount of the Commitment Fee remains unpaid to GYBL following the date that is the one-year anniversary of the Public Listing Date, the remaining amount shall become immediately due. For the avoidance of doubt, (1) the Commitment Fee shall be payable by the Company irrespective of whether any Draw Down Notices have been delivered by the Company in accordance herewith, and (2) no Commitment Fee shall be payable in the event that the Company does not achieve a Public Listing.

(b) On the Public Listing Date, the Company shall make and execute a warrant granting GYBL the right to purchase Common Shares, a copy of which is attached hereto as Exhibit B (the "Warrant") having an expiration date that is the fifth anniversary of the Public Listing Date, granting GYBL the right to purchase, upon the terms set forth more fully therein, up to the number of Common Shares that is equal to 4.0% of the total equity interests (including Common Shares and any other equity interests convertible or exchangeable into Common Shares or bearing equivalent economic interests) outstanding immediately after the completion of the Public Listing (including any Common Shares issued pursuant to an over-allotment option), calculated on a fully diluted basis, at a strike price per Share equal to the lesser of (i) the public offering price (in the case of an initial public offering) or the closing bid price for such Common Shares on the Public Listing Date (in the case of a Public Listing other than an initial public offering), or (ii) the quotient obtained by dividing $700 million by the total number of equity interests (equal to the number of Common Shares, assuming the conversion or exchange of all other equity interests for Common Shares). On the first anniversary following the Public Listing Date (the "Adjustment Date"), if all or any portion of the Warrants remain unexercised and the Daily Closing Price of the Common Shares on the Adjustment Date (the "Current Trading Price") is less than 90% of the then-current strike price of the Warrant, the strike price of such remaining Warrant shall adjust to 105% of the Current Trading Price. For avoidance of doubt, in the event that the Public Listing Date does not occur prior to the termination of this Agreement, no Warrant shall be issuable hereunder.

(c) Notwithstanding anything to the contrary stated herein, if the Parties agree that the issuance of any securities hereunder could result in the Warrant Shares or any Shares issued to the Purchaser pursuant to a Draw Down hereunder not being freely transferable under applicable securities Laws or otherwise adversely effects the Purchaser's ability to sell the Warrant Shares or such Shares issued pursuant to a Draw Down, then the Parties shall structure an alternative, economically equivalent issuance and sale of securities to the Purchaser with equivalent rights of transferability.

Section 4.13 Private Transaction Fee. In the event that the Company does not complete an initial public offering or Reverse Merger Transaction, for any reason, but instead completes a transaction, including but not limited to a merger, acquisition, sale, share exchange, or any other private business combination which results or would result in a Change of Control of the Company within 24 months of the date of this agreement (a "Private Transaction"), then the Company shall pay GYBL at or prior to the closing of such Private Transaction the lesser of (i) 1% of the total consideration received by the Company, its stockholders and management in such Private Transaction (the "Private Transaction Fee"), and (ii) the Commitment Fee, in lieu of the Warrant and the Commitment Fee, and upon such payment this Agreement shall immediately terminate.

Section 4.14 DWAC Eligibility. The Company shall use its reasonable best efforts to cause the Shares and its transfer agent to be, at the time of each Draw Down, eligible to participate in the DWAC system ("DWAC Eligible").

Section 4.15 Reservation of Shares. The Company will have available, and shall reserve and keep available at all times, free of preemptive and other similar rights of stockholders, the requisite aggregate number of authorized but unissued Common Shares to enable the Company to timely effect the issuance, sale and delivery in full to the Purchaser of all the Shares to be issued and delivered under this Agreement, in any case prior to the issuance to the Purchaser of such Common Shares. The number of Common Shares so reserved from time to time, as theretofore increased or reduced as hereinafter provided, may be reduced by the number of Shares actually delivered pursuant to this Agreement.

Section 4.16 Amendments to the Registration Statement; Prospectus Supplements. Except as provided in this Agreement and other than periodic reports required to be filed pursuant to the Exchange Act, the Company shall not file with the Commission any amendment to the Registration Statement that relates to the Purchaser, the Transaction Documents or the transactions contemplated thereby, or file with the Commission any Prospectus Supplement that relates to the Purchaser, the Transaction Documents or the transactions contemplated thereby with respect to which (a) the Purchaser shall not previously have been advised, (b) the Company shall not have given due consideration to any comments thereon received from the Purchaser or its counsel, or (c) the Purchaser shall reasonably object after being so advised, unless it is necessary to amend the Registration Statement or make any supplement to the Prospectus to comply with the Securities Act or any other applicable law or regulation, in which case the Company shall promptly so inform the Purchaser, the Purchaser shall be provided with a reasonable opportunity to review and comment upon any disclosure relating to the Purchaser and the Company shall expeditiously furnish to the Purchaser an electronic copy thereof. In addition, for so long as, in the reasonable opinion of counsel for the Purchaser, the Prospectus (or in lieu thereof, the notice referred to in Rule 173(a) under the Securities Act) is required to be delivered in connection with any sales of registrable securities by the Purchaser, the Company shall not file any Prospectus Supplement

without delivering or making available a copy of such Prospectus Supplement to the Purchaser promptly. Upon receipt of an amendment to the Registration Statement or Prospectus Supplement from the Company or its counsel, the Purchaser shall promptly review such document and provide comments to the Company or its counsel regarding such document, if any, within a reasonable period of time.

ARTICLE V
CLOSING CERTIFICATE; CONDITIONS TO THE SALE AND PURCHASE OF THE SHARES; OPINION AND COMFORT LETTERS

Section 5.01 Closing Certificate. In connection with the execution and delivery of this Agreement, the Purchaser shall receive a certificate from the Company, dated the Effective Date, in the form of Exhibit C hereto.

Section 5.02 Conditions Precedent to the Obligation of the Company to Sell the Shares. The obligation hereunder of the Company to issue and sell the Shares to the Purchaser under any Draw Down Notice is subject to the satisfaction or waiver of each of the conditions set forth below. These conditions are for the Company's sole benefit and may be waived by the Company at any time in its sole discretion.

(a) Accuracy of the Purchaser's Representations and Warranties. Except for representations and warranties that are expressly made as of a particular date, the representations and warranties of the Purchaser in this Agreement and each other Transaction Document shall be true and correct in all material respects as of the date when made and as of each Draw Down Exercise Date and each Settlement Date as though made at that time.

(b) Registration Statement. The Company shall have the necessary number of Common Shares available to be registered pursuant to the Registration Rights Agreement. The Company shall take all reasonable steps to have the Registration Statement declared effective by the Commission. The Registration Statement for the Shares covered in the Draw Down shall have been declared effective by the Commission. There shall be no stop order suspending effectiveness of the Registration Statement.

(c) Performance by the Purchaser. The Purchaser shall have performed, satisfied and complied in all material respects with all covenants, agreements and conditions required by this Agreement and each other Transaction Document to be performed, satisfied or complied with by the Purchaser at or prior to each Draw Down Exercise Date and each Settlement Date, as applicable.

(d) No Injunction. No statute, regulation, executive order, decree, ruling or injunction shall have been enacted, entered, promulgated or endorsed by any court or governmental authority of competent jurisdiction which prohibits the consummation of any of the transactions contemplated by this Agreement and the other Transaction Documents.

(e) No Suspension, Etc. Trading in the Common Shares shall not have been suspended by the Commission or Principal Market, and, at any time prior to each Draw Down Exercise Date and applicable Settlement Date, none of the events described in clauses (i), (ii) and (iii) of Section 4.09 hereof shall have occurred, trading in securities generally as reported on the Principal Market

shall not have been suspended or limited, nor shall a banking moratorium have been declared either by U.S. federal or state authorities, nor shall there have occurred any material outbreak or escalation of hostilities or other national or international calamity or crisis of such magnitude in its effect on, or any material adverse change in, any financial market which, in each case, in the reasonable judgment of the Company, makes it impracticable or inadvisable to issue the Shares.

(f) No Proceedings or Litigation. No action, suit or proceeding before any arbitrator or any governmental authority shall have been commenced, and no investigation by any governmental authority shall have been threatened, against the Company or any of the officers, directors or Affiliates of the Company seeking to restrain, prevent or change the transactions contemplated by this Agreement and the other Transaction Documents, or seeking damages in connection with such transactions.

Section 5.03 Conditions Precedent to the Obligation of the Purchaser to Accept a Draw Down and Purchase the Shares. The obligation hereunder of the Purchaser to accept a Draw Down and to acquire and pay for the Shares is subject to the satisfaction or waiver, at or before each Draw Down Exercise Date and each Settlement Date of each of the conditions set forth below. The conditions are for the Purchaser's sole benefit and may be waived by the Purchaser at any time in its sole discretion.

(a) Accuracy of the Company's Representations and Warranties. Except for representations and warranties that are expressly made as of a particular date, each of the representations and warranties of the Company shall be true and correct in all material respects as of the date when made and as of each Draw Down Exercise Date and as of each Settlement Date, as though made at that time.

(b) Registration Statement. The listing or trading of the Common Shares on the Principal Market shall be effected and the Company shall have the necessary amount of the Shares registered pursuant to the Registration Statement. The Registration Statement shall be effective, and no stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto shall have been issued under the Securities Act, no order preventing or suspending the use of the Prospectus contained in the Registration Statement shall have been issued, and no proceedings for any of those purposes shall have been instituted or be pending or, to the Company's Knowledge, contemplated.

(c) No Suspension. Trading in the Common Shares shall not have been suspended by the Commission or Principal Market, and, at any time prior to such Draw Down Exercise Date, trading in securities generally as reported on the Principal Market shall not have been suspended or limited, nor shall a banking moratorium have been declared either by U.S. federal or state authorities, nor shall there have occurred any material outbreak or escalation of hostilities or other national or international calamity or crisis of such magnitude in its effect on, or any material adverse change in, any financial market which, in each case, in the reasonable judgment of the Purchaser, makes it impracticable or inadvisable to issue the Shares.

(d) Performance by the Company. The Company shall have performed, satisfied and complied in all material respects with all covenants, agreements and conditions required by this Agreement and each other Transaction Document to be performed, satisfied or complied with by the Company at or prior to each Draw Down Exercise Date and each Settlement Date and shall

have delivered the Compliance Certificate substantially in the form attached hereto as Exhibit D. Without limiting the foregoing, the Company shall have paid the applicable portion of the Commitment Fee when due pursuant to Section 4.12(a).

(e) No Injunction. No statute, rule, regulation, executive order, decree, ruling or injunction shall have been enacted, entered, promulgated or endorsed by any court or governmental authority of competent jurisdiction which prohibits the consummation of any of the transactions contemplated by this Agreement and the other Transaction Documents.

(f) No Proceedings or Litigation. No action, suit or proceeding before any arbitrator or any governmental authority shall have been commenced, and no investigation by any governmental authority shall have been threatened, against the Company or any subsidiary, or any of the officers, directors or Affiliates of the Company or any subsidiary seeking to restrain, prevent or change the transactions contemplated by this Agreement and the other Transaction Documents, or seeking damages in connection with such transactions.

(g) Aggregate Limit. The issuance and sale of the Shares issuable pursuant to such Draw Down Notice will not violate Section 6.02 hereof.

(h) Shares Authorized. The Shares issuable pursuant to such Draw Down Notice will have been duly authorized by all necessary limited liability company action of the Company.

(i) Information. Prior to each Settlement Date and from time to time as reasonably requested by the Purchaser upon reasonable notice, the Company shall make available for inspection and review by the Purchaser, its advisors and representatives, and any underwriter participating in any disposition of the Shares on behalf of the Purchaser pursuant to the Registration Statement, during normal business hours of the Company, any amendment, prospectus or prospectus supplement thereto, or any "Blue Sky," Financial Industry Regulatory Authority (FINRA) or other filing, all financial and other records, all documents and filings with the Commission, and all other corporate documents and properties of the Company as may be reasonably necessary for the purpose of such review. In addition, the Company shall cause its officers, directors and employees to supply all such information reasonably requested by the Purchaser or any such representative, advisor or underwriter and to respond to all questions and other inquiries reasonably made or submitted by any such individuals or entities. Notwithstanding the foregoing, the Company shall not be required to provide any trade secret or similar information, any information covered by attorney-client privilege or classified as attorney work product, or, while it is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act, any material, non-public information.

(j) Opinion of Counsel and 10b-5 Statement. Subsequent to the effective date of the Registration Statement and prior to the first Draw Down under this Agreement, the Purchaser shall have received an opinion of counsel and 10b-5 statement to the Company in a form reasonably acceptable to the Purchaser's counsel.

(k) Comfort Letters. Subsequent to the effective date of the Registration Statement and prior to the first Draw Down under this Agreement, the Purchaser shall have received letters from the Company's independent auditors, dated the respective dates of delivery thereof and addressed to the Purchaser and any underwriter, in form and substance reasonably satisfactory to the

Purchaser, containing statements and information of the type customarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained or incorporated by reference in each of the Registration Statement, the Prospectus, and any Prospectus Supplement.

ARTICLE VI
DRAW DOWN TERMS

Section 6.01 Draw Down Terms. Subject to the satisfaction of the conditions set forth in this Agreement, and subject to Section 6.02 below, the Parties agree (unless otherwise mutually agreed upon by the Parties in writing) as follows:

(a) The Company may, in its sole discretion, issue a Draw Down Notice (as defined in Section 6.01(h) hereof) for a specified Draw Down Amount Requested. Subject to Section 6.01(g) below, the Purchaser shall pay a per-Share amount equal to 90% of the average applicable Daily Closing Price during the Draw Down Pricing Period (the "Purchase Price"). Subject to Section 4.06 hereof, the Draw Down Amount Requested shall not exceed four hundred percent (400%) (the "Draw Down Limit") of the average daily trading volume for the 30 Trading Days immediately preceding the Draw Down Exercise Date, or as otherwise agreed to in writing between the Parties.

(b) Prior to commencement of the Draw Down Pricing Period, the Company shall deliver the Shares to be purchased in such Draw Down to the Purchaser. If Shares delivered to the Purchaser prior to commencement of the Draw Down Pricing Period are delivered in certificated form and not DWAC Eligible, then the Draw Down Pricing Period shall not begin until the Shares are cleared by an appointed clearing agent.

(c) Only one Draw Down shall be allowed in each Draw Down Pricing Period.

(d) Each Draw Down shall be settled on the first Trading Day after the end of each Draw Down Pricing Period (the "Settlement Date").

(e) At the end of each Draw Down Pricing Period, the Purchaser's total Draw Down commitment under this Agreement shall be reduced by the total Draw Down Amount for such Draw Down Pricing Period.

(f) Each Draw Down will automatically expire immediately after the last Trading Day of each Draw Down Pricing Period.

(g) Each Draw Down Notice shall set forth the Threshold Price set by the Company for such Draw Down. If the Daily Closing Price on a given Trading Day in the Draw Down Pricing Period, multiplied by 9/10, is less than the Threshold Price, then the total Draw Down Amount Requested will be reduced by 1/30th, and no Shares will be purchased or sold with respect to such Trading Day and the Daily Closing Price on such Trading Day shall be excluded from the calculation of the Purchase Price, unless otherwise agreed by the Parties.

(h) As a condition to the exercise of any Draw Down, the Company must (i) provide a notice to the Purchaser of the Company's exercise of any Draw Down via email before

commencement of trading on the first Trading Day of the Draw Down Pricing Period covered by such notice (the "Draw Down Notice"), substantially in the form attached hereto as Exhibit E, and (ii) pursuant to Section 6.01(b), deliver the Shares to the Purchaser or its designees via DWAC, if the Company is approved for DWAC in an amount equal to the Draw Down Amount Requested (which amount shall be adjusted in the event that the amount accepted by the Purchaser pursuant to Section 6.01(a) hereof is different than the Draw Down Amount Requested). The date the Company delivers the Draw Down Notice and the Shares in accordance with this Section 6.01(h) shall be a "Draw Down Exercise Date." The Draw Down Notice shall specify the Draw Down Amount Requested, set the Threshold Price for such Draw Down and designate the first Trading Day of the Draw Down Pricing Period.

(i) On each Settlement Date, the Purchaser shall (i) provide the Company a closing notice in the form of Exhibit F attached hereto; (ii) make payment for the Shares acquired pursuant to this Agreement to the Company's designated account by wire transfer of immediately available funds, *provided that* the Shares were received by the Purchaser in accordance with Section 6.01(b) hereof; and (iii) return to the Company any Shares delivered to the Purchaser in connection with the applicable Draw Down Notice pursuant to Section 6.01(b) above but not purchased by the Purchaser pursuant to the terms hereof, it being understood that Purchaser shall have the ability to sell any purchased Shares at any time following their deposit pursuant to Section 6.01(b).

Section 6.02 Aggregate Limit. Notwithstanding anything to the contrary herein, in no event may the Company issue a Draw Down Notice to the extent that the sale of Shares pursuant thereto and pursuant to all prior Draw Down Notices issued pursuant to Section 6.01 would cause the Company to sell or the Purchaser to purchase an aggregate number of Shares exceeding the Aggregate Limit. If the Company issues a Draw Down Notice that otherwise would permit the Purchaser to purchase a number of Shares which would cause the aggregate purchases by Purchaser hereunder to exceed the Aggregate Limit, such Draw Down Notice shall be void *ab initio* to the extent by which number of Shares issuable pursuant to such Draw Down Notice, together with the number of Shares purchased by the Purchaser pursuant hereto, would exceed the Aggregate Limit.

ARTICLE VII
TERMINATION

Section 7.01 Term, Termination by Mutual Consent. Unless earlier terminated as provided hereunder, this Agreement shall terminate automatically on the earliest of (i) sixty (60) consecutive months from the Public Listing Date (the "Investment Period"); (ii) sixty (60) months from the Effective Date (as may be extended for the duration of the Investment Period if the Public Listing Date falls within such five (5) year period), and (iii) the date the Purchaser shall have purchased the Aggregate Limit. This Agreement may be terminated by Company upon 90 days advance written notice to GYBL for any reason, provided that the entire Commitment Fee shall be due and payable in cash by the Company to GYBL by wire transfer of immediately available funds prior and as a condition to any such termination. This Agreement may be terminated immediately at any time by mutual written consent of the Parties, effective as of the date of such mutual written consent unless otherwise provided in such written consent; *provided, however*, that this Agreement shall not terminate until the Company has delivered to the Purchaser the number of Shares required to be delivered hereunder in accordance with the terms hereof, if any.

Section 7.02 Effect of Termination. In the event of termination by the Company or the Purchaser, the transactions contemplated by this Agreement shall be terminated without further action by either party, it being understood that the Warrant and Registration Rights Agreement shall not terminate and shall continue to survive in accordance with their respective terms. If this Agreement is terminated as provided in Section 7.01 herein, this Agreement shall become void and of no further force and effect, except as provided in Section 9.09 hereof.

ARTICLE VIII
INDEMNIFICATION

Section 8.01 General Indemnity.

(a) Indemnification by the Company. The Company will indemnify and hold harmless the Purchaser and each Person who controls the Purchaser within the meaning of Section 15 of the Securities Act or Section 20(a) of the Exchange Act from and against any losses, claims, damages, liabilities and expenses (including reasonable costs of defense and investigation and all attorneys' fees) to which the Purchaser and each such controlling Person may become subject, under the Securities Act, the Exchange Act or otherwise, insofar as such losses, claims, damages, liabilities and expenses (or actions in respect thereof) (collectively, "Losses," and each, a "Loss") arise out of or are based upon (i) any untrue statement or alleged untrue statement of a material fact contained, or incorporated by reference, in the Registration Statement relating to the Shares being sold to the Purchaser (including any prospectus relating thereto), or any amendment or supplement to it, (ii) the omission or alleged omission to state in the Registration Statement or any document incorporated by reference in the Registration Statement, a material fact required to be stated therein or necessary to make the statements therein not misleading, or (iii) breach of representation, warranty or covenant of the Company contained in this Agreement or any other Transaction Document, including a failure to deliver the Shares to the Purchaser by the deadline set forth in herein, whether or not such Losses are a result of a claim by a third party. Pursuant to Section 8.02 hereof, the Company will reimburse the Purchaser and each such controlling Person promptly upon demand for any legal or other costs or expenses reasonably incurred by the Purchaser or such controlling Person in investigating, defending against, or preparing to defend against any such Loss.

(b) Indemnification by the Purchaser. The Purchaser will indemnify and hold harmless the Company, each of its directors and officers, and each Person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20(a) of the Exchange Act from and against any Losses that arise out of or are based upon (i) an untrue statement, alleged untrue statement, omission or alleged omission, included in the Registration Statement in reliance upon, and in conformity with, written information furnished by the Purchaser to the Company for inclusion in the Registration Statement, (ii) the omission or alleged omission to state in the Registration Statement a material fact required to be stated therein or necessary to make the statements therein not misleading, to the extent, but only to the extent, the untrue statement, alleged untrue statement, omission or alleged omission was made in reliance upon, and in conformity with, written information furnished by the Purchaser to the Company for inclusion in the Registration Statement, whether or not such Losses are as a result of a claim by a third party, or (iii) breach of representation, warranty or covenant of the Purchaser contained in this Agreement or any other Transaction Document. Pursuant to Section 8.02 hereof, the Purchaser will reimburse the Company and each such director, officer or controlling Person promptly upon demand for any

legal or other costs or expenses reasonably incurred by the Company or the other Person in investigating, defending against, or preparing to defend against any such Loss.

Section 8.02 Indemnification Procedures. Promptly after a Person receives notice of a claim or the commencement of an action for which the Person intends to seek indemnification under Section 8.01, the Person will notify the indemnifying party in writing of the claim or commencement of the action, suit or proceeding; *provided, however*, that failure to notify the indemnifying party will not relieve the indemnifying party from liability under Section 8.01, except to the extent it has been materially prejudiced by the failure to give notice. The indemnifying party will be entitled to participate in the defense of any claim, action, suit or proceeding as to which indemnification is being sought, and if the indemnifying party acknowledges in writing the obligation to indemnify the party against whom the claim or action is brought, the indemnifying party may (but will not be required to) assume the defense against the claim, action, suit or proceeding with counsel satisfactory to it. After an indemnifying party notifies an indemnified party that the indemnifying party wishes to assume the defense of a claim, action, suit or proceeding, the indemnifying party will not be liable for any legal or other expenses incurred by the indemnified party in connection with the defense against the claim, action, suit or proceeding except that if, in the opinion of counsel to the indemnifying party, one or more of the indemnified parties should be separately represented in connection with a claim, action, suit or proceeding, the indemnifying party will pay the reasonable fees and expenses of one separate counsel for the indemnified parties. Each indemnified party, as a condition to receiving indemnification as provided in Section 8.01, will cooperate in all reasonable respects with the indemnifying party in the defense of any action or claim as to which indemnification is sought. No indemnifying party will be liable for any settlement of any action effected without its prior written consent. No indemnifying party will, without the prior written consent of the indemnified party, effect any settlement of a pending or threatened action with respect to which an indemnified party is, or is informed that it may be, made a party, and for which it would be entitled to indemnification, unless the settlement includes an unconditional release of the indemnified party from all liability and claims which are the subject matter of the pending or threatened action. If for any reason the indemnification provided for in this Agreement is not available to, or is not sufficient to hold harmless, an indemnified party in respect of any loss or liability referred to in Section 8.01 as to which it is entitled to indemnification thereunder, each indemnifying party will, in lieu of indemnifying the indemnified party, contribute to the amount paid or payable by the indemnified party as a result of such loss or liability, (i) in the proportion which is appropriate to reflect the relative benefits received by the indemnifying party on the one hand and by the indemnified party on the other from the sale of the Shares which is the subject of the claim, action, suit or proceeding which resulted in the loss or liability or (ii) if that allocation is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits of the sale of such Shares, but also the relative fault of the indemnifying party and the indemnified party with respect to the statements or omissions which are the subject of the claim, action, suit or proceeding that resulted in the loss or liability, as well as any other relevant equitable considerations.

ARTICLE IX
MISCELLANEOUS

Section 9.01 Fees and Expenses. Each party shall bear its own fees and expenses related to the transactions contemplated by this Agreement and the other Transaction Documents; provided,

however, that the Company shall pay, on the Effective Date, all reasonable and documented attorneys' fees and expenses incurred by the Purchaser up to $50,000 (less amounts paid by the Company to the Purchaser's counsel prior to the date hereof in respect of this Agreement) in connection with the preparation, negotiation, execution and delivery of this Agreement and the other Transaction Documents. In addition, the Company shall pay all reasonable attorneys' fees and expenses incurred by the Purchaser in connection with any amendments, modifications or waivers of this Agreement or any other Transaction Document. The Company shall pay all stamp or other similar taxes and duties levied in connection with issuance of the Shares pursuant hereto or the Warrant. All expenses over $1,000 shall be approved by the Company in advance, in writing (email being sufficient), which approval shall not be unreasonably withheld.

Section 9.02 Specific Enforcement, Consent to Jurisdiction.

(a) The Company and the Purchaser acknowledge and agree that irreparable damage would occur in the event that any of the provisions of this Agreement or any other Transaction Document were not performed in accordance with their specific terms or were otherwise breached. It is accordingly agreed that either party shall be entitled to an injunction or injunctions from any court of competent jurisdiction or arbitral authority to prevent or cure breaches of the provisions of this Agreement or any other Transaction Document by the other party and to enforce specifically the terms and provisions hereof, such right is in addition to any other remedy to which either party may be entitled by law or equity, without the necessity of posting a bond or other security or the burden of proving actual damages.

(b) All disputes, controversies or claims between the Parties arising out of or in connection with this agreement (including its existence, validity or termination) which cannot be amicably resolved shall be finally resolved and settled under the Rules of Arbitration of the American Arbitration Association and its affiliate, the International Center for Dispute Resolution, in New York City. The arbitration tribunal shall be composed of one arbitrator, unless otherwise agreed by the Parties. The arbitration will take place in New York City, New York, and shall be conducted in the English language. The arbitration award shall be final and binding on the Parties.

Section 9.03 Entire Agreement; Amendment. This Agreement and the other Transaction Documents represent the entire agreement of the Parties with respect to the subject matter hereof and thereof, and there are no promises, undertakings, representations or warranties by either party relative to the subject matter hereof not expressly set forth herein. No provision of this Agreement may be amended other than by a written instrument signed by both Parties.

Section 9.04 Notices. Any notice, demand, request, waiver or other communication required or permitted to be given hereunder shall be in writing, delivered by electronic mail to the address designated below, and shall be effective on the date that the email is received. However, if the time of deemed receipt of any notice is not before 5:30 p.m. local time on a business day at the address of the recipient it is deemed to have been received at the commencement of business on the next business day. The address for such communications shall be:

If to the Company: FibroBiologics LLC
Attn: Pete O'Heeron
Email: pete.oheeron@fibrobiologics.com

If to GYBL:	GEM Yield Bahamas Ltd. Attn: Christopher F. Brown, Manager Email: cbrown@gemny.com
With a copy (which shall not constitute notice):	Gibson, Dunn & Crutcher LLP Attn: Boris Dolgonos Email: bdolgonos@gibsondunn.com
If to the Purchaser:	GEM Global Yield LLC SCS Attn: Christopher F. Brown, Manager Email: cbrown@gemny.com
With a copy (which shall not constitute notice):	Gibson, Dunn & Crutcher LLP Attn: Boris Dolgonos Email: bdolgonos@gibsondunn.com

Either party hereto may from time to time change its address for notices by giving at least 10 days' advance written notice of such changed address to the other party hereto.

Section 9.05 Waivers. No waiver by either party of any default with respect to any provision, condition or requirement of this Agreement or any other Transaction Document shall be deemed to be a continuing waiver in the future or a waiver of any other provisions, condition or requirement hereof, nor shall any delay or omission of any party to exercise any right hereunder in any manner impair the exercise of any such right accruing to it thereafter. No provision of this Agreement or any other Transaction Document may be waived other than in a written instrument signed by the party against whom enforcement of such waiver is sought.

Section 9.06 Headings. The article, section and subsection headings in this Agreement are for convenience only and shall not constitute a part of this Agreement for any other purpose and shall not be deemed to limit or affect any of the provisions hereof.

Section 9.07 Successors and Assigns. Neither party may assign this Agreement or any other Transaction Document to any Person without the prior consent of the other party; *provided that* without the consent of the other, (i) the Company may assign its rights and obligations under this Agreement and other Transaction Documents to the Successor Company; (ii) the Purchaser may assign its rights and obligations under this Agreement or any other Transaction Document to an Affiliate of the Purchaser. In the event of (a) a Reverse Merger Transaction or (b) any other transaction (including by way of merger, consolidation or otherwise), including the conversion of the Company to a corporation, or the formation of any successor or other similar entity by the Company or an Affiliate thereof to facilitate, or in connection with, a Public Listing, this Agreement and each other Transaction Document (including the Warrant) shall be automatically

assigned to the Successor Company, and the Parties agree that the terms of this Agreement and such other Transaction Document shall be construed to give effect to such assignment, including, without limitation, that: (v) references to the Company as a "limited liability company" with associated limited liability company powers shall be construed as references to the Company as a "corporation" with associated corporate powers; (w) the term "Company" shall be construed as "Successor Company"; (x) the term "Shares" shall be construed as the common shares of the Successor Company, (y) the term "Public Listing Date" shall be construed as the first trading day following consummation of the Reverse Merger Transaction (in the case of clause (a) above); and (z) the term "Public Listing" shall be construed as the date of the Reverse Merger Transaction (in the cause of clause (a) above). This Agreement shall be binding upon and inure to the benefit of the Parties and their successors and assigns.

Section 9.08 Governing Law; Waiver of Jury Trial.

(a) This Agreement shall be governed by and construed in accordance with the internal laws of the State of New York, without giving effect to the choice of law provisions except Section 5-1401 of the New York General Obligations Law.

(b) EACH PARTY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION HEREWITH OR ARISING OUT OF THIS AGREEMENT OR ANY TRANSACTION CONTEMPLATED HEREBY.

Section 9.09 Survival. The representations and warranties of the Company and the Purchaser contained in ARTICLE III and the covenants contained in ARTICLE IV shall survive the execution and delivery hereof until the termination of this Agreement, and the agreements and covenants set forth in ARTICLE VIII of this Agreement shall survive the execution and delivery hereof. The provisions of ARTICLE VIII (Indemnification) shall remain in full force and effect indefinitely notwithstanding any termination of this Agreement or other Transaction Document.

Section 9.10 Counterparts. This Agreement may be executed in any number of counterparts, all of which taken together shall constitute one and the same instrument and shall become effective when counterparts have been signed by each party and delivered electronically in PDF to the other Parties hereto, it being understood that all Parties need not sign the same counterpart.

Section 9.11 Publicity. Without the prior written consent of the Purchaser, which shall not unreasonably be withheld, delayed or conditioned, the Company may not issue a press release or otherwise make a public statement or announcement with respect to this Agreement and the other Transaction Documents or the transactions contemplated hereby or thereby or the existence of this Agreement or any other Transaction Document (including, without limitation, by filing a copy thereof with the Commission). In the event that the Company is required by applicable law, rules or regulations (include Principal Market rules or regulations) to issue a press release or otherwise make a public statement or announcement with respect to any of such matters, the Company shall use its commercially reasonable efforts to consult with the Purchaser on the form and substance of such press release or other disclosure.

Section 9.12 Severability. The provisions of this Agreement are severable and, in the event that any court of competent jurisdiction shall determine that any one or more of the provisions or part

of the provisions contained in this Agreement shall, for any reason, be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision or part of a provision of this Agreement, and this Agreement shall be reformed and construed as if such invalid or illegal or unenforceable provision, or part of such provision, had never been contained herein, so that such provisions would be valid, legal and enforceable to the maximum extent possible.

Section 9.13 Further Assurances. From and after the date of this Agreement, upon the request of the Purchaser or the Company, each of the Company and the Purchaser shall execute and deliver such instrument, documents and other writings as may be reasonably necessary or desirable to confirm and carry out and to effectuate fully the intent and purposes of this Agreement and each other Transaction Document. Each Party hereby expressly agrees that, in the event that any action or determination of the Commission or other regulatory or governmental authority, or the refusal or failure of any other governmental approval, would or does prohibit or otherwise materially interfere with the ability of the Parties to effect the transactions contemplated by this Agreement in the manner contemplated by and described in it, each such Party shall use its good-faith best efforts to resolve and cure such condition, including, without limitation, by amending this Agreement to the extent necessary therefor.

[*Signature Page Follows*]

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be duly executed by their respective authorized officer as of the date first above written.

FIBROBIOLOGICS LLC

By: _____
Name: PETE O'HEERON
Title: MGR.

GEM GLOBAL YIELD LLC SCS

By: _____
Name: Christopher F. Brown
Title: Manager

GEM YIELD BAHAMAS LTD.

By: _____
Name: Christopher F. Brown
Title: Director

CFB

EXHIBIT A

FORM OF REGISTRATION RIGHTS AGREEMENT

[*See attached.*]

REGISTRATION RIGHTS AGREEMENT

November 12, 2021

This **REGISTRATION RIGHTS AGREEMENT** (this "Agreement"), is made and entered into as of the date first above written, by and among FIBROBIOLOGICS LLC, a Delaware limited liability company and having a principal place of business at 16815 Royal Crest Drive, Suite 100, Houston, TX 77058 (the "Company"), GEM GLOBAL YIELD LLC SCS, a "société en commandite simple" formed under the laws of Luxembourg having LEI No. 213800CXBEHFXVLBZO92 having an address at 12C, rue Guillaume J. Kroll, L-1882 Luxembourg ("Purchaser"); and GEM YIELD BAHAMAS LIMITED, a limited company formed under the laws of the Commonwealth of the Bahamas and having an address at 3 Bayside Executive Park, West Bay Street & Blake Road, P.O. Box N-4875, Nassau, The Bahamas ("GYBL," and together with Purchaser, the "Parties"). Capitalized terms used herein and not otherwise defined herein shall have the respective meanings set forth in the Purchase Agreement (as defined below).

RECITALS

WHEREAS, the Company has offered GYBL the right to place with Purchaser up to U.S. $100,000,000 worth of Common Shares, as well as Common Shares underlying a warrant that will be granted to GYBL upon a Public Listing; and

WHEREAS, the Parties have agreed, upon the terms and subject to the conditions of that certain Share Purchase Agreement, dated as of the date hereof (the "Purchase Agreement") to the purchase and sale of such Common Shares and, to induce the Purchaser to enter into the Purchase Agreement, the Company has agreed to provide certain registration rights under the Securities Act of 1933, as amended, and the rules and regulations thereunder, or any similar successor statute (collectively, the "Securities Act"), and applicable state securities laws.

NOW, THEREFORE, in consideration of the promises and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound hereby, the Company and the Purchaser hereby agree as follows:

1. **Definitions.**

As used in this Agreement, the following terms shall have the following meanings:

(a) "Business Day" means any day other than Saturday, Sunday or any other day on which commercial banks in New York, New York are authorized or required by law to remain closed.

(b) "Commission" means the United States Securities and Exchange Commission.

(c) "Effective Date" means the date that the Registration Statement has been declared effective by the Commission or that it went effective pursuant to Section 8 of the Securities Act.

(d) "Effectiveness Deadline" means with respect to the Registration Statement, the earlier of (A) the 60th calendar day after the earlier of (1) the Filing Deadline and (2) the date on which such Registration Statement is filed with the Commission and (B) the fifth Business Day after the date the Company is notified (orally or in writing, whichever is earlier) by the Commission that such Registration Statement will not be reviewed or will not be subject to further review, unless the Company is advised by the Commission that it will not accept an acceleration request for such Registration Statement but that it would not prevent such Registration Statement from becoming effective pursuant to Section 8 of the Securities Act, in which case the 25th calendar day after the Company is advised by the Commission that it will not accept an acceleration request for such Registration Statement but that it would not prevent such Registration Statement from becoming effective pursuant to Section 8 of the Securities Act.

(e) "Filing Deadline" means with respect to the Registration Statement, (i) the 30th (thirtieth) calendar day after the Public Listing Date for the Warrant Shares, and (ii) the 180th (one-hundred eightieth) calendar day after the Public Listing Date for the Common Shares issuable upon exercise of any Draw Down.

(f) "Investor" means the Purchaser, GYBL, and any transferee or assignee thereof to which either of Purchaser or GYBL assigns its rights under this Agreement and who agrees to become bound by the provisions of this Agreement in accordance with Section 9 and any transferee or assignee thereof to whom a transferee or assignee assigns its rights under this Agreement and who agrees to become bound by the provisions of this Agreement in accordance with Section 9.

(g) "Legal Counsel" means legal counsel designated by Investor to review and oversee the Registration Statement and all New Registration Statements on Investors' behalf.

(h) "Person" means any person or entity including but not limited to any corporation, a limited liability company, an association, a partnership, an organization, a business, an individual, a governmental or political subdivision thereof or a governmental agency.

(i) "Register," "registered," and "registration" refer to a registration effected by preparing and filing one or more registration statements of the Company in compliance with the Securities Act and pursuant to Rule 415 under the Securities Act or any successor rule providing for offering securities on a continuous basis ("Rule 415"), and the declaration or ordering of effectiveness of such registration statement(s) by the Commission.

(j) "Registrable Securities" mean all of (i) the Shares which have been, or which may from time to time be, issued or issuable to the Investor pursuant to the Purchase Agreement; (ii) the Shares which have been, or which may from time to time be, issued or issuable pursuant to the Warrant; or (iii) any securities issued or issuable upon any share split, dividend or other distribution, recapitalization or similar event with respect to the foregoing; provided that the Shares shall cease to be Registrable Securities upon a sale pursuant to a Registration Statement or

Rule 144 under the Securities Act (in which case, only such security sold shall cease to be a Registrable Security).

(k) "Registration Statement" means a registration statement or registration statements of the Company filed under the Securities Act covering the resale by the Investor of Registrable Securities, as such registration statement or registration statements may be amended and supplemented from time to time (including pursuant to Rule 462(b) under the Securities Act), including all documents filed as part thereof or incorporated by reference therein.

(l) "Rule 144" means Rule 144 promulgated by the Commission under the Securities Act, as such rule may be amended from time to time, or any other similar or successor rule or regulation of the Commission that may at any time permit the Investor to sell securities of the Company to the public without registration.

(m) "Rule 415" means Rule 415 promulgated by the Commission under the Securities Act, as such rule may be amended from time to time, or any other similar or successor rule or regulation of the Commission providing for offering securities on a delayed or continuous basis.

2. Registration.

(a) Mandatory Registration. In the event that the Company completes a Public Listing, then the Company shall prepare and, as soon as practicable, but in no event later than the Filing Deadline, file with the Commission an initial Registration Statement on Form S-1 or S-3, or such other form or forms as may be reasonably acceptable to the Investor and Legal Counsel, covering the resale by the Investor of Registrable Securities. The Registration Statement shall register with the Commission for resale all of the Registrable Securities. The Investor and Legal Counsel shall have a reasonable opportunity to review and comment upon such Registration Statement or amendment to such Registration Statement and any related prospectus prior to its filing with the Commission. The Investor shall furnish all information reasonably requested by the Company for inclusion therein. The Company shall use commercially reasonable best efforts to have the Registration Statement or amendment declared effective by the Commission prior to the Effectiveness Deadline. Subject to Allowable Grace Periods (as defined herein below), the Company shall use commercially reasonable efforts to keep the Registration Statement effective pursuant to Rule 415 promulgated under the Securities Act and available for sales of all of the Registrable Securities at all times until the date as of which the Investor no longer owns any Registrable Securities (the "Registration Period"). The Registration Statement (including any amendments or supplements thereto and prospectuses contained therein) shall not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein, or necessary to make the statements therein, in light of the circumstances in which they were made, not misleading. Notwithstanding anything to the contrary stated herein, in addition to any other remedies available at law or equity or as set forth herein, in the Purchase Agreement or otherwise, if (i) the Company shall have failed to file the Registration Statement by the Filing Deadline or (ii) the Registration Statement is not declared effective by the Effectiveness Deadline, in each case, for any reason or no reason, then the Company shall pay to Purchaser or its designee an amount equal to $10,000 for each day following the Filing Deadline or Effectiveness Deadline, as

applicable, until the Registration Statement has been filed with the Commission or the Registration Statement has been declared effective, as applicable.

(b) Rule 424 Prospectus. The Company shall, as required by applicable securities regulations, from time to time file with the Commission, pursuant to Rule 424 promulgated under the Securities Act, the prospectus, amendments and prospectus supplements, if any, to be used in connection with sales of the Registrable Securities under the Registration Statement. The Investor and its counsel shall have a reasonable opportunity to review and comment upon such prospectus prior to its filing with the Commission. The Investor shall use its reasonable best efforts to comment upon such prospectus within two Trading Days from the date the Investor receives the proposed final version of such prospectus.

(c) Sufficient Number of Shares Registered. In the event the number of shares available under the Registration Statement is insufficient to cover all of the Registrable Securities, the Company shall file one or more additional Registration Statements (each a "New Registration Statement"), so as to cover all of such Registrable Securities as soon as practicable, but in any case not later than twenty (20) Trading Days after the necessity therefor arises. The Company shall use commercially reasonable efforts to cause each such New Registration Statement to become effective as soon as practicable following the filing thereof.

(d) Piggyback Registrations. Without limiting any of the Company's obligations hereunder or under the Purchase Agreement, if there is not an effective Registration Statement covering all of the Registrable Securities and the Company shall determine to prepare and file with the Commission a registration statement relating to an offering for its own account or the account of others under the Securities Act of any of its equity securities (other than on Form S-4 or Form S-8 (each as promulgated under the Securities Act) or their then equivalents relating to equity securities to be issued solely in connection with any acquisition of any entity or business or equity securities issuable in connection with the Company's option or other employee benefit plans), then the Company shall deliver to the Investor a written notice of such determination and, if within five days after the date of the delivery of such notice, the Investor shall so request in writing, the Company shall include in such registration statement all or any part of such Registrable Securities the offer and sale of which the Investor requests to be registered; provided, however, that the foregoing shall not apply to a registration in respect of the Company's Public Listing.

(e) No Inclusion of Other Securities. In no event shall the Company include any securities other than Registrable Securities on any Registration Statement pursuant to Section 2(a) or 2(c) without the prior written consent of the Investor.

(f) Offering. If the staff of the Commission (the "Staff") or the Commission seeks to characterize any offering pursuant to a Registration Statement filed pursuant to this Agreement as constituting an offering of securities that does not permit such Registration Statement to become effective and be used for resales by the Investor on a delayed or continuous basis under Rule 415 at then-prevailing market prices (and not fixed prices) (or as otherwise may be acceptable to the Investor), or if after the filing of the initial Registration Statement with the Commission pursuant to Section 2(a), the Company is otherwise required by the Staff or the Commission to reduce the number of Registrable Securities included in such initial Registration Statement, then the Company shall reduce the number of Registrable Securities to be included in

such initial Registration Statement (with the prior consent of the Investor and Legal Counsel as to the specific Registrable Securities to be removed therefrom, which consent shall not be unreasonably withheld, delayed, denied, or conditioned) until such time as the Staff and the Commission shall so permit such Registration Statement to become effective and be used as aforesaid. Notwithstanding anything in this Agreement to the contrary, if after giving effect to the actions referred to in the immediately preceding sentence, the Staff or the Commission does not permit such Registration Statement to become effective and be used for resales by the Investor on a delayed or continuous basis under Rule 415 at then-prevailing market prices (and not fixed prices) (or as otherwise may be acceptable to the Investor), the Company shall not request acceleration of the Effective Date of such Registration Statement and, in its sole and absolute discretion, may take such steps as may be required for such Registration Statement to become effective pursuant to Section 8 of the Securities Act. If not, the Company shall promptly (but in no event later than 48 hours) request the withdrawal of such Registration Statement pursuant to Rule 477 under the Securities Act, and the Effectiveness Deadline shall automatically be deemed to have elapsed with respect to such Registration Statement at such time as the Staff or the Commission has made a final and non-appealable determination that the Commission will not permit such Registration Statement to be so utilized (unless prior to such time the Company and the Investor have received assurances from the Staff or the Commission reasonably acceptable to Legal Counsel that a new Registration Statement filed by the Company with the Commission promptly thereafter may be so utilized). In the event of any reduction in Registrable Securities pursuant to this paragraph, the Company shall file additional Registration Statements in accordance with Section 2(c) until such time as all Registrable Securities have been included in Registration Statements that have been declared effective and the prospectus contained therein is available for use by the Investor. Notwithstanding any provision herein or in the Purchase Agreement to the contrary, the Company's obligations to register Registrable Securities (and any related conditions to the Investor's obligations) shall be qualified as necessary to comport with any requirement of the Commission or the Staff as addressed in this Section 2(f).

3. Related Obligations. With respect to the Registration Statement and whenever any Registrable Securities are to be registered pursuant to Section 2 including on any New Registration Statement, the Company shall use commercially reasonable efforts to effect the registration of the Registrable Securities in accordance with the intended method of disposition thereof and, pursuant thereto, the Company shall have the following obligations:

(a) The Company shall prepare and file with the Commission such amendments (including post-effective amendments) and supplements to any registration statement and any prospectus and prospectus supplement used in connection with such registration statement, which prospectus is to be filed pursuant to Rule 424 promulgated under the Securities Act, as may be necessary to keep the Registration Statement or any New Registration Statement effective at all times during the Registration Period, and, during such period, comply with the provisions of the Securities Act with respect to the disposition of all Registrable Securities of the Company covered by the Registration Statement or any New Registration Statement until such time as all of such Registrable Securities shall have been disposed of in accordance with the intended methods of disposition by the seller or sellers thereof as set forth in such registration statement.

(b) The Company shall permit the Investor to review and comment upon the Registration Statement or any New Registration Statement and all amendments and supplements

thereto at least two Trading Days prior to their filing with the Commission, and not file any document in a form to which Investor reasonably objects. The Investor shall use its commercially reasonable efforts to comment upon the Registration Statement or any New Registration Statement and any amendments or supplements thereto within two (2) Trading Days from the date the Investor receives the final version thereof. The Company shall furnish to the Investor, without charge, any correspondence from the Commission or the Staff to the Company or its representatives relating to the Registration Statement or any New Registration Statement.

(c) Upon request of the Investor, the Company shall furnish to the Investor, (i) promptly after the same is prepared and filed with the Commission, at least one copy of such registration statement and any amendment(s) thereto, including financial statements and schedules, all documents incorporated therein by reference and all exhibits; (ii) upon the effectiveness of any registration statement, a copy of the prospectus included in such registration statement and all amendments and supplements thereto (or such other number of copies as the Investor may reasonably request); and (iii) such other documents, including copies of any preliminary or final prospectus, as the Investor may reasonably request from time to time in order to facilitate the disposition of the Registrable Securities owned by the Investor. For the avoidance of doubt, any filing available to the Investor via the Commission's live EDGAR system shall be deemed "furnished to the Investor" hereunder.

(d) The Company shall use commercially reasonable efforts to (i) register and qualify the Registrable Securities covered by a registration statement under such other securities or "blue sky" laws of such jurisdictions in the United States as the Investor reasonably requests; (ii) prepare and file in those jurisdictions, such amendments (including post-effective amendments) and supplements to such registrations and qualifications as may be necessary to maintain the effectiveness thereof during the Registration Period; (iii) take such other actions as may be necessary to maintain such registrations and qualifications in effect at all times during the Registration Period; and (iv) take all other actions reasonably necessary or advisable to qualify the Registrable Securities for sale in such jurisdictions; *provided, however*, that the Company shall not be required in connection therewith or as a condition thereto to (x) qualify to do business in any jurisdiction where it would not otherwise be required to qualify but for this Section 3(d), (y) subject itself to general taxation in any such jurisdiction, or (z) file a general consent to service of process in any such jurisdiction. The Company shall promptly notify the Investor who holds Registrable Securities of the receipt by the Company of any notification with respect to the suspension of the registration or qualification of any of the Registrable Securities for sale under the securities or "blue sky" laws of any jurisdiction in the United States or its receipt of actual notice of the initiation or threatening of any proceeding for such purpose.

(e) As promptly as practicable after becoming aware of such event or facts, the Company shall notify the Investor in writing of the happening of any event or existence of such facts as a result of which the prospectus included in any registration statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, and promptly prepare a supplement or amendment to such registration statement to correct such untrue statement or omission, and deliver a copy of such supplement or amendment to the Investor (or such other number of copies as the Investor may reasonably request). The Company shall also promptly notify the Investor in writing (i) when a prospectus or

any prospectus supplement or post-effective amendment has been filed, and when a registration statement or any post-effective amendment has become effective (notification of such effectiveness shall be delivered to the Investor by email on the same day of such effectiveness); (ii) of any request by the Commission for amendments or supplements to any registration statement or related prospectus or related information; and (iii) of the Company's reasonable determination that a post-effective amendment to a registration statement would be appropriate.

(f) The Company shall use commercially reasonable efforts to prevent the issuance of any stop order or other suspension of effectiveness of any registration statement, or the suspension of the qualification of any Registrable Securities for sale in any jurisdiction and, if such an order or suspension is issued, to obtain the withdrawal of such order or suspension at the earliest possible moment and to notify the Investor of the issuance of such order and the resolution thereof or its receipt of actual notice of the initiation or threat of any proceeding for such purpose.

(g) The Company shall (i) cause all the Registrable Securities to be listed on each securities exchange on which securities of the same class or series issued by the Company are then listed, if any, if the listing of such Registrable Securities is then permitted under the rules of such exchange; or (ii) secure designation and quotation of all the Registrable Securities on the Principal Market. The Company shall pay all fees and expenses in connection with satisfying its obligation under this Section.

(h) The Company shall comply with the Purchase Agreement and the Warrant with respect to the issuance of Registrable Securities.

(i) The Company shall at all times maintain the services of a transfer agent and registrar with respect to its Common Shares.

(j) If reasonably requested by the Investor, the Company shall (i) as soon as practicable after receipt of written notice from the Investor, incorporate in a prospectus supplement or post-effective amendment such information as the Investor reasonably believes necessary to be included therein relating to the sale and distribution of Registrable Securities, including, without limitation, information with respect to the number of Registrable Securities being sold, the purchase price being paid therefor and any other terms of the offering of the Registrable Securities; (ii) make all required filings of such prospectus supplement or post-effective amendment as soon as practicable after being notified of the matters to be incorporated in such prospectus supplement or post-effective amendment; and (iii) supplement or make amendments to any registration statement.

(k) The Company shall use its reasonable best efforts to cause the Registrable Securities covered by any registration statement to be registered with or approved by such other governmental agencies or authorities as may be necessary to consummate the disposition of such Registrable Securities.

(l) Within three Trading Days after any registration statement which includes the Registrable Securities is declared effective by the Commission, the Company shall deliver, and shall cause legal counsel for the Company to deliver, to the transfer agent for such Registrable Securities (with copies to the Investor) confirmation that such registration statement has been

declared effective by the Commission in the form attached hereto as Exhibit A or such form agreed to by the Investor. Thereafter, if reasonably requested by the Purchaser at any time, the Company (acting directly or through its counsel) shall deliver to the Purchaser a written confirmation whether or not the effectiveness of such registration statement has lapsed at any time for any reason (including, without limitation, the issuance of a stop order by the Commission) and whether or not the registration statement is current and available to the Purchaser for sale of all of the Registrable Securities.

(m) The Company shall take all other reasonable actions necessary and reasonably requested in writing by the Investor to expedite and facilitate disposition by the Investor of Registrable Securities pursuant to any registration statement, including participating in customary due diligence sessions with underwriters of the Registrable Securities (in the case of an underwritten offering) and engaging counsel and independent auditors to provide customary legal opinions (including disclosure letters) and comfort letters, respectively.

(n) Notwithstanding anything to the contrary herein (but subject to the last sentence of this Section 3(n)), at any time after the Effective Date of a particular Registration Statement, the Company may delay the disclosure of material, non-public information concerning the Company or any of its Subsidiaries the disclosure of which at the time is not, in the good-faith opinion of the board of directors of the Company, in the best interest of the Company, nor, in the opinion of counsel to the Company, otherwise required (a "Grace Period"); *provided, however*, that the Company shall promptly, but in no event later than 9:30 a.m. (New York City time) on the second Trading Day immediately prior to the commencement of any Grace Period (except for such case where it is impracticable to provide such two-Trading Day advance notice, in which case the Company shall provide such notice as soon as possible), notify the Investor in writing of the (i) existence of material, non-public information giving rise to a Grace Period (provided that in each such notice the Company shall not disclose the content of such material, non-public information to the Investor) and the date on which such Grace Period will begin and (ii) date on which such Grace Period ends; *provided, further*, that (I) no Grace Period shall exceed 20 consecutive Trading Days, and during any 365-day period, all such Grace Periods shall not exceed an aggregate of 60 Trading Days; *provided, further*, that the Company shall not register any securities for the account of itself or any other shareholder during any such Grace Period (other than pursuant to a registration statement on Form S-4 or Form S-8, (II) the first day of any Grace Period must be at least three Trading Days (or such shorter period as may be agreed by the Parties) after the last day of any prior Grace Period and (III) no Grace Period may exist during (A) the first 10 consecutive Trading Days after the Effective Date of the particular Registration Statement or (B) the five-Trading Day period following each Settlement Date (each, an "Allowable Grace Period"). For purposes of determining the length of a Grace Period above, such Grace Period shall begin on and include the date set forth in the notice referred to in clause (i) above, provided that such notice is received by the Investor not later than 9:30 a.m. (New York City time) on the second Trading Day immediately prior to such commencement date (except for such case where it is impossible to provide such two-Trading Day advance notice, in which case the Company shall provide such notice as soon as possible) and shall end on and include the later of the date the Investor receives the notice referred to in clause (ii) above and the date referred to in such notice. The provisions of Section 3(j) hereof shall not be applicable during the period of any Allowable Grace Period. Upon expiration of each Grace Period, the Company shall again be bound by the first sentence of Section 3(e) with respect to the information giving rise thereto unless such

material, non-public information is no longer applicable. Notwithstanding anything to the contrary contained in this Section 3(n), the Company shall cause its transfer agent to deliver unlegended Shares to a transferee of the Investor in accordance with the terms of the Purchase Agreement in connection with any sale of Registrable Securities with respect to which the Investor has entered into a contract for sale, and delivered a copy of the prospectus included as part of the particular Registration Statement to the extent applicable, prior to the Investor's receipt of the notice of a Grace Period and for which the Investor has not yet settled.

4. Obligations of the Investor.

(a) At least five Business Days prior to the first anticipated filing date of each Registration Statement, the Company shall notify the Investor in writing of the information the Company reasonably requires from the Investor in connection with any registration statement hereunder. The Investor shall furnish to the Company such information regarding itself, the Registrable Securities held by it and the intended method of disposition of the Registrable Securities held by it as shall be reasonably required to effect the registration of such Registrable Securities and shall execute such documents in connection with such registration as the Company may reasonably request.

(b) The Investor agrees to cooperate with the Company as reasonably requested by the Company in connection with the preparation and filing of each Registration Statement hereunder, unless the Investor has notified the Company in writing of the Investor's election to exclude all of the Investor's Registrable Securities from such Registration Statement.

(c) The Investor agrees that, upon receipt of any notice from the Company of the happening of any event or existence of facts of the kind described in Section 3(f) or the first sentence of Section 3(e), the Investor will immediately discontinue disposition of Registrable Securities pursuant to any registration statement(s) covering such Registrable Securities until the Investor's receipt of the copies of the supplemented or amended prospectus contemplated by Section 3(f) or the first sentence of Section 3(e). Notwithstanding anything to the contrary, the Company shall cause its transfer agent to promptly deliver Shares without any restrictive legend in accordance with the terms of the Purchase Agreement in connection with any sale of Registrable Securities with respect to which an Investor has entered into a contract for sale prior to the Investor's receipt of a notice from the Company of the happening of any event of the kind described in Section 3(f) or the first sentence of Section 3(e) and for which the Investor has not yet settled.

5. Expenses and Fees.

(a) All reasonable expenses, other than sales or brokerage commissions, incurred in connection with registrations, filings or qualifications pursuant to Sections 2 and 3, including, without limitation, all registration, listing and qualifications fees, printers and accounting fees, FINRA filing fees (if any) and fees and disbursements of counsel for the Company shall be paid by the Company.

(b) The Company shall pay the reasonable and documented fees and expenses of Legal Counsel in connection with the review and overseeing the Registration Statement and all

New Registration Statements on Investors' behalf, not to exceed $15,000 in the aggregate.

6. Indemnification.

(a) To the fullest extent permitted by law, the Company will, and hereby does, indemnify, hold harmless and defend the Investor, each Person, if any, who controls the Investor, the members, directors, officers, shareholders, partners, employees, agents, advisors, representatives of the Investor and each Person, if any, who controls the Investor within the meaning of the Securities Act or the Securities Exchange Act of 1934, as amended (the "Exchange Act") (each, an "Indemnified Person"), against any losses, claims, damages, liabilities, judgments, fines, penalties, charges, costs (including, without limitation, court costs, reasonable attorneys' fees, costs of defense and investigation), attorneys' fees, amounts paid in settlement or expenses, joint or several (collectively, "Claims"), incurred in investigating, preparing or defending any action, claim, suit, inquiry, proceeding, investigation or appeal taken from the foregoing by or before any court or governmental, administrative or other regulatory agency, body or the Commission, whether pending or threatened, whether or not an indemnified party is or may be a party thereto, whether or not arising from a claim by a third party ("Indemnified Damages"), to which any of them may become subject insofar as such Claims (or actions or proceedings, whether commenced or threatened, in respect thereof) arise out of or are based upon: (i) any untrue statement or alleged untrue statement of a material fact in the Registration Statement, any New Registration Statement or any post-effective amendment thereto or in any filing made in connection with the qualification of the offering under the securities or other "blue sky" laws of any jurisdiction in which Registrable Securities are offered, or the omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading, (ii) any untrue statement or alleged untrue statement of a material fact contained in the any prospectus (as amended or supplemented, if the Company files any amendment thereof or supplement thereto with the Commission) or in any prospectus supplement or the omission or alleged omission to state therein any material fact necessary to make the statements made therein, in light of the circumstances under which the statements therein were made, not misleading, (iii) any violation or alleged violation by the Company of the Securities Act, the Exchange Act, any other law, including, without limitation, any state securities law, or any rule or regulation thereunder relating to the offer or sale of the Registrable Securities pursuant to the Registration Statement or any New Registration Statement or (iv) any material violation by the Company of this Agreement (the matters in the foregoing clauses (i) through (iv) being, collectively, "Violations"). The Company shall reimburse each Indemnified Person promptly as such expenses are incurred and are due and payable, for any reasonable and documented legal fees or other reasonable expenses incurred by them in connection with investigating or defending any such Claim. Notwithstanding anything to the contrary contained herein, the indemnification agreement contained in this Section (a): (i) shall not apply to a Claim by an Indemnified Person arising out of or based upon a Violation which occurs in reliance upon and in conformity with information about the Investor furnished in writing to the Company by such Indemnified Person expressly for use in connection with the preparation of the Registration Statement, any New Registration Statement or any such amendment thereof or supplement thereto, if such prospectus was timely made available by the Company pursuant to Section 3(c) or Section 3(e); (ii) with respect to any superseded prospectus, shall not inure to the benefit of any such person from whom the person asserting any such Claim purchased the Registrable Securities that are the subject thereof (or to the benefit of any person controlling such person) if the untrue statement or omission of material

fact contained in the superseded prospectus was corrected in the revised prospectus, as then amended or supplemented, if such revised prospectus was timely made available by the Company pursuant to Section 3(c) or Section 3(e), and the Indemnified Person was promptly advised in writing not to use the incorrect prospectus prior to the use giving rise to a violation and such Indemnified Person, notwithstanding such advice, used it; (iii) shall not be available to the extent such Claim is based on a failure of the Investor to deliver or to cause to be delivered the prospectus made available by the Company, if such prospectus was timely made available by the Company pursuant to Section 3(c) or Section 3(e); and (iv) shall not apply to amounts paid in settlement of any Claim if such settlement is effected without the prior written consent of the Company, which consent shall not be unreasonably withheld. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of the Indemnified Person and shall survive the transfer of the Registrable Securities by the Investor pursuant to Section 9.

(b) In connection with the Registration Statement or any New Registration Statement, the Investor agrees to severally and not jointly indemnify, hold harmless and defend, to the same extent and in the same manner as is set forth in Section 6(a), the Company, each of its directors, each of its officers who signs the Registration Statement or any New Registration Statement, each Person, if any, who controls the Company within the meaning of the Securities Act or the Exchange Act (collectively and together with an Indemnified Person, an "Indemnified Party"), against any Claim or Indemnified Damages to which any of them may become subject, under the Securities Act, the Exchange Act or otherwise, insofar as such Claim or Indemnified Damages arise out of or are based upon any Violation, in each case to the extent, and only to the extent, that such Violation occurs in reliance upon and in conformity with written information about the Investor furnished to the Company by the Investor expressly for use in connection with such registration statement; and, subject to Section 6(d), the Investor will reimburse any legal or other expenses reasonably incurred by them in connection with investigating or defending any such Claim; provided, however, that the indemnity agreement contained in this Section 6(b) and the agreement with respect to contribution contained in Section 7 shall not apply to amounts paid in settlement of any Claim if such settlement is effected without the prior written consent of the Investor, which consent shall not be unreasonably withheld, delayed or conditioned; provided, further, however, that the Investor shall be liable under this Section 6(b) for only that amount of a Claim or Indemnified Damages as does not exceed the net proceeds to the Investor as a result of the sale of Registrable Securities pursuant to such registration statement. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of such Indemnified Party and shall survive the transfer of the Registrable Securities by the Investor pursuant to Section 9.

(c) Promptly after receipt by an Indemnified Person or Indemnified Party under this Section 6 of notice of the commencement of any action or proceeding (including any governmental action or proceeding) involving a Claim, such Indemnified Person or Indemnified Party shall, if a Claim in respect thereof is to be made against any indemnifying party under this Section 6 deliver to the indemnifying party a written notice of the commencement thereof, and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume control of the defense thereof with counsel mutually satisfactory to the indemnifying party and the Indemnified Person or the Indemnified Party, as the case may be; *provided, however*, that an Indemnified Person or Indemnified Party shall have the right to retain its own counsel with the fees and

expenses to be paid by the indemnifying party, if, in the reasonable opinion of counsel retained by the indemnifying party, the representation by such counsel of the Indemnified Person or Indemnified Party and the indemnifying party would be inappropriate due to actual or potential differing interests between such Indemnified Person or Indemnified Party and any other party represented by such counsel in such proceeding, *provided* that there may be no more than one such separate counsel for all of the Indemnified Parties. The Indemnified Party or Indemnified Person shall cooperate fully with the indemnifying party in connection with any negotiation or defense of any such action or claim by the indemnifying party and shall furnish to the indemnifying party all information reasonably available to the Indemnified Party or Indemnified Person which relates to such action or claim. The indemnifying party shall keep the Indemnified Party or Indemnified Person fully apprised at all times as to the status of the defense or any settlement negotiations with respect thereto. No indemnifying party shall be liable for any settlement of any action, claim or proceeding effected without its written consent, provided, however, that the indemnifying party shall not unreasonably withhold, delay or condition its consent. No indemnifying party shall, without the consent of the Indemnified Party or Indemnified Person, consent to entry of any judgment or enter into any settlement or other compromise which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party or Indemnified Person of a release from all liability in respect to such claim or litigation. Following indemnification as provided for hereunder, the indemnifying party shall be subrogated to all rights of the Indemnified Party or Indemnified Person with respect to all third parties, firms or corporations relating to the matter for which indemnification has been made. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action shall not relieve such indemnifying party of any liability to the Indemnified Person or Indemnified Party under this Section 6, except to the extent that the indemnifying party is prejudiced in its ability to defend such action.

(d) The indemnification required by this Section 6 shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as and when bills are received or Indemnified Damages are incurred.

(e) The indemnity agreements contained herein shall be in addition to (i) any cause of action or similar right of the Indemnified Party or Indemnified Person against the indemnifying party or others, and (ii) any liabilities the indemnifying party may be subject to pursuant to the law.

7. **Contribution.** To the extent any indemnification by an indemnifying party is prohibited or limited by law, the indemnifying party agrees to make the maximum contribution with respect to any amounts for which it would otherwise be liable under Section 6 to the fullest extent permitted by law; provided, however, that: (i) no seller of Registrable Securities guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any seller of Registrable Securities who was not guilty of fraudulent misrepresentation; and (ii) contribution by any seller of Registrable Securities shall be limited in amount to the net amount of proceeds received by such seller from the sale of such Registrable Securities.

8. Reports and Disclosures under the Securities Acts.

With a view to making available to the Investor the benefits of Rule 144, the Company agrees, on and after the Public Company Date, at the Company's sole expense, to:

(a) make and keep public information available, as those terms are understood and defined in Rule 144;

(b) file with the Commission in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act so long as the Company remains subject to such requirements and the filing of such reports and other documents is required for the applicable provisions of Rule 144;

(c) furnish to the Investor so long as the Investor owns Registrable Securities, promptly upon request, (i) a written statement by the Company that it has complied with the reporting and disclosure provisions of Rule 144, the Securities Act and the Exchange Act, (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company, and (iii) such other information as may be reasonably requested to permit the Investor to sell such securities pursuant to Rule 144 without registration (for the avoidance of doubt, any filing available to the Investor via the Commission's live EDGAR system shall be deemed "furnished to the Investor" hereunder); and

(d) take such additional action as is requested by the Investor to enable the Investor to sell the Registrable Securities pursuant to Rule 144, including, without limitation, delivering all such legal opinions, consents, certificates, resolutions and instructions to the Company's transfer agent as may be requested from time to time by the Investor and otherwise reasonably cooperate with Investor and Investor's broker to effect such sale of securities pursuant to Rule 144.

The Company agrees that damages may be an inadequate remedy for any breach of the terms and provisions of this Section 8 and that Investor shall, whether or not it is pursuing any remedies at law, be entitled to equitable relief in the form of a preliminary or permanent injunction, without having to post any bond or other security, upon any breach or threatened breach of any such terms or provisions. Investor agrees that the Rule 144 rights under this Agreement are subject to the delivery by the Investor of a bona fide fair market offer for a licensing or funding opportunity pursuant to the Purchase Agreement.

9. Assignment of Registration Rights. None of the Parties may assign this Agreement to any Person without the prior consent of the others; *provided that* without the consent of the other, (i) the Company may assign its rights and obligations under this Agreement to the Successor Company; (ii) the Purchaser may assign its rights and obligations under this agreement to an Affiliate of the Purchaser. In the event of a Reverse Merger Transaction, this Agreement shall be automatically assigned to the Successor Company, and the Parties agree that the terms of this Agreement shall be construed to give effect to such assignment.

10. Amendment of Registration Rights. Provisions of this Agreement may be amended and the observance thereof may be waived (either generally or in a particular instance and either retroactively or prospectively), only with the mutual written consent of the Company

and the Investor. Failure of any Party to exercise any right or remedy under this Agreement or otherwise, or delay by a Party in exercising such right or remedy, shall not operate as a waiver thereof.

11. Miscellaneous.

(a) A Person is deemed to be a holder of Registrable Securities whenever such Person owns or is deemed to own of record such Registrable Securities. If the Company receives conflicting instructions, notices or elections from two or more Persons with respect to the same Registrable Securities, the Company shall act upon the basis of instructions, notice or election received from the registered owner of such Registrable Securities.

(b) Any notices, consents, waivers or other communications required or permitted to be given under the terms of this Agreement must be in writing and will be deemed to have been delivered upon receipt, when delivered by electronic mail, return receipt requested, properly addressed to the Party to receive the same. The addresses for such communications shall be:

If to the Company:	FIBROBIOLOGICS LLC Attn: Pete O'Heeron Email: pete.oheeron@fibrobiologics.com
If to GYBL:	GEM Yield Bahamas Ltd. Attn: Cristopher F. Brown, Director Email: cbrown@gemny.com
With a copy (which shall not constitute notice):	Gibson, Dunn & Crutcher LLP Attn: Boris Dolgonos Email: bdolgonos@gibsondunn.com
If to the Purchaser:	GEM Global Yield LLC SCS Attn: Christopher F. Brown, Manager Email: cbrown@gemny.com
With a copy (which shall not constitute notice):	Gibson, Dunn & Crutcher LLP Attn: Boris Dolgonos Email: bdolgonos@gibsondunn.com

or at such other address and/or email address and/or to the attention of such other person as the recipient Party has specified by written notice given to each other Party three (3) Trading Days prior to the effectiveness of such change. Written confirmation of receipt (A) given by the recipient of such notice, consent, waiver or other communication, or (B) mechanically or electronically generated by the sender's computer or email service containing the time, date, recipient email address and text of such transmission shall be rebuttable evidence of personal service or receipt.

(c) Failure of any Party to exercise any right or remedy under this Agreement or otherwise, or delay by a Party in exercising such right or remedy, shall not operate as a waiver thereof.

(d) This Agreement shall be governed by the internal laws of the State of New York, without giving effect to the choice of law provisions except Section 5-1401 of the New York General Obligations Law. **EACH PARTY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION HEREWITH OR ARISING OUT OF THIS AGREEMENT OR ANY TRANSACTION CONTEMPLATED HEREBY.**

(e) All disputes, controversies or claims between the Parties arising out of or in connection with this Agreement (including its existence, validity or termination) which cannot be amicably resolved shall be finally resolved and settled under the Rules of Arbitration of the American Arbitration Association and its affiliate the International Center for Dispute Resolution in New York City. The arbitration tribunal shall be composed of one arbitrator. The arbitration will take place in New York City, New York, and shall be conducted in the English language. The arbitration award shall be final and binding on the Parties.

(f) This Agreement, the Purchase Agreement, and the Warrant constitute the entire agreement among the Parties hereto with respect to the subject matter hereof and thereof. There are no restrictions, promises, warranties or undertakings among the parties hereto, other than those set forth or referred to herein and therein. This Agreement , the Purchase Agreement, and the Warrant supersede all prior agreements and understandings among the Parties hereto with respect to the subject matter hereof and thereof.

(g) Subject to the requirements of Section 9, this Agreement shall inure to the benefit of and be binding upon the permitted successors and assigns of each of the Parties hereto.

(h) The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

(i) This Agreement may be executed in identical counterparts, each of which shall be deemed an original but all of which shall constitute one and the same agreement. This Agreement, once executed by a Party, may be delivered to the other Party hereto by email in a "pdf" format data file of a copy of this Agreement bearing the signature of the Party so delivering this Agreement.

(j) Each Party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all such other agreements, certificates, instruments and documents, as the other Party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

(k) The language used in this Agreement will be deemed to be the language chosen by the Parties to express their mutual intent, and no rules of strict construction will be

applied against any Party.

[*Remainder of Page Intentionally Left Blank; Signature Page Follows*]

IN WITNESS WHEREOF, the Parties have caused this Registration Rights Agreement to be duly executed as of day and year first above written.

THE COMPANY:

FIBROBIOLOGICS LLC

By:_____
Name:
Title:

PURCHASER:

GEM GLOBAL YIELD LLC SCS

By:_____
Name: Christopher F. Brown
Title: Manager

GEM YIELD BAHAMAS LIMITED

By:_____
Name: Christopher F. Brown
Title: Director

EXHIBIT A

FORM OF NOTICE OF EFFECTIVENESS OF REGISTRATION STATEMENT

[TRANSFER AGENT]
Attn:

Re: FIBROBIOLOGICS LLC

Ladies and Gentlemen:

We are counsel to FIBROBIOLOGICS LLC, a Delaware limited liability company (the "Company"), and have represented the Company in connection with that certain private placement of shares (the "Offering"), pursuant to which the Company issued to GEM GLOBAL YIELD LLC SCS, a "société en commandite simple" formed under the laws of Luxembourg (the "Investor") _____ common shares (the "Shares").

Pursuant to the Offering, the Company also has entered into a Registration Rights Agreement with the Investor (the "Registration Rights Agreement") pursuant to which the Company agreed, among other things, to register the Registrable Securities (as defined in the Registration Rights Agreement) under the Securities Act of 1933, as amended (the "Securities Act"). In connection with the Company's obligations under the Registration Rights Agreement, on _____ ____, the Company filed a Registration Statement on Form _____ (File No. 333-_____) (the "Registration Statement") with the United States Securities and Exchange Commission (the "Commission") relating to the Registrable Securities which names the Investor as a selling shareholder thereunder.

In connection with the foregoing, we advise you that a member of the Commission's staff has advised us by _____ that the Commission has entered an order declaring the Registration Statement effective under the Securities Act at [ENTER TIME OF EFFECTIVENESS] on [ENTER DATE OF EFFECTIVENESS], and we have no knowledge that any stop order suspending its effectiveness has been issued or that any proceedings for that purpose are pending before, or threatened by, the Commission. Thus, the Registrable Securities are available for resale under the Securities Act pursuant to the Registration Statement.

Very truly yours,

_____

By:
Name:
Title:

cc: Investor

EXHIBIT B

FORM OF WARRANT

[*See attached.*]

NEITHER THE SECURITIES REPRESENTED HEREBY NOR THE SECURITIES ISSUABLE UPON THE EXERCISE OF THIS WARRANT HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT") OR ANY STATE SECURITIES LAWS. SUCH SECURITIES MAY BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED ONLY (A) TO THE COMPANY, (B) IN COMPLIANCE WITH RULE 144 UNDER THE SECURITIES ACT, IF AVAILABLE, AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS, (C) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT, OR (D) IN A TRANSACTION THAT DOES NOT REQUIRE REGISTRATION UNDER THE SECURITIES ACT OR ANY APPLICABLE STATE SECURITIES LAWS, AND THE HOLDER HAS, PRIOR TO SUCH SALE, FURNISHED TO THE COMPANY AN OPINION OF COUNSEL OR OTHER EVIDENCE OF EXEMPTION, IN EITHER CASE REASONABLY SATISFACTORY TO THE COMPANY. HEDGING TRANSACTIONS INVOLVING THESE SECURITIES MAY NOT BE CONDUCTED UNLESS IN COMPLIANCE WITH THE SECURITIES ACT.

WARRANT TO PURCHASE

COMMON SHARES

OF

FIBROBIOLOGICS LLC

Expires: The date that is the third anniversary of the Public Listing Date

Date of Issuance: [•]	No. of Shares: The number equal to 4.0% of the total equity interests outstanding immediately after the completion of the Public Listing (including any Common Shares issued pursuant to an over-allotment option).

FOR VALUE RECEIVED, the undersigned, FIBROBIOLOGICS LLC, a Delaware limited liability company and having a principal place of business at 16815 Royal Crest Drive, Suite 100, Houston, TX 77058 (together with its successors and assigns, the "Issuer" and the "Company"), hereby certifies that GEM Yield Bahamas Limited ("GEM") or its assigns is entitled to subscribe for and purchase, during the Term (as hereinafter defined), in accordance with the terms of this Warrant, up to a number of Common Shares equal to 4.0% of the total equity interests on a fully diluted basis as of the date of the Public Listing (including Common Shares and any other equity interests convertible or exchangeable into Common Shares or bearing equivalent economic interests) outstanding immediately after the completion of the Public Listing (including any Common Shares issued pursuant to an over-allotment option), calculated on fully diluted basis, at an strike price per Share equal to the lesser of (i) the public offering price (in the case of an initial public offering) or the closing bid price for such Common Shares on the Public Listing Date (in the case of a Public Listing other than an initial public offering), or (ii) the quotient obtained by dividing $700 million by the total number of equity interests (equal to the number of Common Shares, assuming the conversion or exchange of all other equity interests for Common Shares);

provided that, on the first anniversary following the Public Listing Date (the "Adjustment Date"), if all or any portion of this Warrant remains unexercised and the closing price of the Common Shares on the Adjustment Date is less than 90% of the then current strike price of this Warrant (the "Baseline Price"), then the strike price of this Warrant shall be adjusted to 105% of the Baseline Price. Capitalized terms used in this Warrant shall have the respective meanings specified in Section 8 hereof, and capitalized terms used but not defined in this Warrant have the meanings given them in the Purchase Agreement. This Warrant is issued in accordance with, and subject to, the terms and conditions of the Purchase Agreement.

1. Term. The Holder may exercise this Warrant for a period which shall commence on the Public Listing Date, and shall expire at 6:00 p.m., Eastern Time, on the date that is the fifth anniversary of the Public Listing Date (such period being the "Term").

2. Method of Exercise; Payment; Issuance of New Warrant; Transfer and Exchange.

(a) Time of Exercise. The purchase rights represented by this Warrant may be exercised in whole or in part during the Term.

(b) Method of Exercise. The Holder hereof may exercise this Warrant, in whole or in part, by the surrender of this Warrant (with the exercise form attached hereto, duly executed at the principal office of the Issuer, and by the payment to the Issuer of an amount of consideration therefor equal to the Warrant Price in effect on the date of such exercise multiplied by the number of Warrant Shares with respect to which this Warrant is then being exercised, payable at such Holder's election (i) by certified or official bank check or by wire transfer to an account designated by the Issuer, (ii) by "cashless exercise" in accordance with the provisions Section 2(c) below, or (iii) by a combination of the foregoing methods of payment selected by the Holder of this Warrant.

(c) Cashless Exercise.

(i) Notwithstanding any provisions herein to the contrary, if the Per Share Market Value of one Common Share is greater than the Warrant Price (at the date of calculation as set forth below), in lieu of exercising this Warrant by payment of cash, the Holder may exercise this Warrant by a cashless exercise and shall receive the number of Common Shares equal to an amount (as determined below) by surrender of this Warrant at the principal office of the Issuer together with the properly endorsed notice of exercise, in which event the Issuer shall issue to the Holder a number of Common Shares computed using the following formula:

$$X = Y - \frac{(A)(Y)}{B}$$

Where $X =$ the number of Common Shares to be issued to the Holder.

$Y =$ the number of Common Shares purchasable upon exercise of all of the Warrant or, if only a portion of the Warrant is being exercised, the portion of the Warrant being exercised.

$A =$ the Warrant Price.

B = the Per Share Market Value of one Common Share.

For purposes of Rule 144 promulgated under the Securities Act, it is intended, understood and acknowledged that the Warrant Shares issued in a cashless exercise transaction shall be deemed to have been acquired by the Holder, and the holding period for such shares shall be deemed to have commenced, on the date this Warrant was originally issued.

(d) Issuance of Shares. In the event of any exercise of this Warrant in accordance with and subject to the terms and conditions hereof, certificates for the Warrant Shares so purchased shall be dated the date of such exercise and delivered to the Holder hereof within a reasonable time, not exceeding five Trading Days after such exercise (the "Delivery Date"), unless the Common Shares are then uncertificated, in which case the Warrant Shares shall be registered in book-entry form in the name of the Holder, or, at the request of the Holder (provided that a registration statement under the Securities Act providing for the resale of the Warrant Shares is then in effect or that the Warrant Shares are otherwise exempt from registration), issued and delivered to the Depository Trust Company ("DTC") account on the Holder's behalf via the Deposit Withdrawal Agent Commission System ("DWAC") within a reasonable time, not exceeding three (3) Trading Days after such exercise, and the Holder hereof shall be deemed for all purposes to be the holder of the Warrant Shares so purchased as of the date of such exercise. Notwithstanding the foregoing to the contrary, the Issuer or its transfer agent shall be obligated to issue and deliver the shares to the DTC on a holder's behalf via DWAC only if such exercise is in connection with a sale or other exemption from registration by which the shares may be issued without a restrictive legend and the Issuer and its transfer agent are participating in DTC through the DWAC system. The Holder shall deliver this original Warrant, or an indemnification reasonably acceptable to the Issuer undertaking with respect to such Warrant in the case of its loss, theft or destruction, at such time that this Warrant is fully exercised. This Warrant shall be exercisable, either in its entirety or, from time to time, for part only of the number of Warrant Shares referenced by this Warrant. If this Warrant is submitted in connection with any partial exercise and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the actual number of Warrant Shares being acquired upon such exercise, then the Company shall, as soon as practicable, and in no event later than five Business Days after any exercise, and at its own expense, issue a new Warrant of like tenor representing the right to purchase the number of Warrant Shares purchasable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised. With respect to partial exercises of this Warrant, the Issuer shall keep written records for the Holder of the number of Warrant Shares exercised as of each date of exercise.

(e) Compensation for Buy-In on Failure to Timely Deliver Shares upon Exercise. In addition to any other rights available to the Holder, if the Issuer fails to cause its transfer agent to transmit to the Holder a certificate or certificates representing the Warrant Shares or register such Warrant Shares in book-entry form in the name of the holder, as applicable, pursuant to an exercise on or before the Delivery Date, and if after such date the Holder is required by its broker to purchase (in an open market transaction or otherwise) Common Shares to deliver in satisfaction of a sale by the Holder of the Warrant Shares which the Holder anticipated receiving upon such exercise (a "Buy-In"), then the Issuer shall (1) pay in cash to the Holder the amount by which (x) the Holder's total purchase price (including brokerage commissions, if any) for the Common Shares so purchased exceeds (y) the amount obtained by multiplying (A) the number of

Warrant Shares that the Issuer was required to deliver to the Holder in connection with the exercise at issue times (B) the price at which the sell order giving rise to such purchase obligation was executed, and (2) at the option of the Holder, either reinstate the portion of the Warrant and equivalent number of Warrant Shares for which such exercise was not honored or deliver to the Holder the number of Common Shares that would have been issued had the Issuer timely complied with its exercise and delivery obligations hereunder. For example, if the Holder purchases Common Shares having a total purchase price of $11,000 to cover a Buy-In with respect to an attempted exercise of Common Shares with an aggregate sale price giving rise to such purchase obligation of $10,000, under clause (1) of the immediately preceding sentence the Issuer shall be required to pay the Holder $1,000. The Holder shall provide the Issuer written notice indicating the amounts payable to the Holder in respect of the Buy-In, together with applicable confirmations and other evidence reasonably requested by the Issuer. Nothing herein shall limit a Holder's right to pursue any other remedies available to it hereunder, at law or in equity including, without limitation, a decree of specific performance and/or injunctive relief with respect to the Issuer's failure to timely deliver certificates representing Common Shares or register such Warrant Shares in book-entry form in the name of the Holder, as applicable, upon exercise of this Warrant as required pursuant to the terms hereof.

(f) Transferability of Warrant. This Warrant may be transferred by a Holder, in whole or in part, without the prior written consent of the Issuer, (i) at any time, to an Affiliate of the Holder, or (ii) at any time following the Public Listing Date, to any Person, by giving the Issuer notice of the portion of the Warrant being transferred and setting forth the name, address, and taxpayer identification number of the transferee and surrendering this Warrant to the Issuer for reissuance to the transferee(s) (and Holder, if applicable). If transferred pursuant to this paragraph, this Warrant may be transferred on the books of the Issuer by the Holder hereof in person or by duly authorized attorney, upon surrender of this Warrant at the principal office of the Issuer, properly endorsed (by the Holder executing an assignment in the form attached hereto) and upon payment of any necessary transfer tax or other governmental charge imposed upon such transfer. This Warrant is exchangeable at the principal office of the Issuer for Warrants to purchase the same aggregate number of Warrant Shares, each new Warrant to represent the right to purchase such number of Warrant Shares as the Holder hereof shall designate at the time of such exchange. All Warrants issued on transfers or exchanges shall be dated the date hereof and shall be identical with this Warrant except as to the number of Warrant Shares issuable pursuant thereto.

(g) Continuing Rights of Holder. The Issuer will, at the time of, or at any time after, each exercise of this Warrant, upon the request of the Holder hereof, acknowledge in writing the extent, if any, of its continuing obligation to afford to such Holder all rights to which such Holder shall continue to be entitled after such exercise in accordance with the terms of this Warrant, provided that if any such Holder shall fail to make any such request, the failure shall not affect the continuing obligation of the Issuer to afford such rights to such Holder.

(h) Compliance with Securities Laws.

(i) The Holder of this Warrant, by acceptance hereof, acknowledges that this Warrant and the Warrant Shares to be issued upon exercise hereof are being acquired solely for the Holder's own account and not as a nominee for any other party, and for investment, and that the Holder will not offer, sell or otherwise dispose of this Warrant or any Warrant Shares

to be issued upon exercise hereof except pursuant to an effective registration statement, or an exemption from registration, under the Securities Act and any applicable state securities laws.

(ii) Except as provided in paragraph (iii) below, this Warrant and all certificates representing Warrant Shares issued upon exercise hereof shall be stamped or imprinted with a legend in substantially the following form:

> NEITHER THE SECURITIES REPRESENTED HEREBY NOR THE SECURITIES ISSUABLE UPON THE EXERCISE OF THIS WARRANT HAVE BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT") OR ANY STATE SECURITIES LAWS. SUCH SECURITIES MAY BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED ONLY (A) TO THE COMPANY, (B) IN COMPLIANCE WITH RULE 144 UNDER THE SECURITIES ACT, IF AVAILABLE, AND IN ACCORDANCE WITH APPLICABLE STATE SECURITIES LAWS, (C) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT, OR (D) IN A TRANSACTION THAT DOES NOT REQUIRE REGISTRATION UNDER THE SECURITIES ACT OR ANY APPLICABLE STATE SECURITIES LAWS, AND THE HOLDER HAS, PRIOR TO SUCH SALE, FURNISHED TO THE COMPANY AN OPINION OF COUNSEL OR OTHER EVIDENCE OF EXEMPTION, IN EITHER CASE REASONABLY SATISFACTORY TO THE COMPANY.

(iii) The Issuer agrees to reissue this Warrant or certificates representing any of the Warrant Shares, if any, without the legend set forth above if at such time, prior to making any transfer of any such securities, the Holder shall give written notice to the Issuer describing the manner and terms of such transfer and such manner and terms permit the removal of such legend. Such proposed transfer will not be effected until: (a) either (i) the transfer agent shall have received an opinion of counsel reasonably satisfactory to the transfer agent, to the effect that the registration or qualification of such securities under the Securities Act is not required in connection with such proposed transfer, (ii) a registration statement under the Securities Act covering such proposed disposition has been filed by the Issuer with the Securities and Exchange Commission and has become effective under the Securities Act, (iii) the Issuer and transfer agent have received other evidence reasonably satisfactory to the Issuer and transfer agent that such registration and qualification under the Securities Act, or (iv) the transfer agent shall have received an opinion of counsel reasonably satisfactory to the transfer agent, to the effect that such security can be sold pursuant to Rule 144 under the Securities Act; and (b) either (i) the Issuer has been advised by counsel reasonably satisfactory to the Issuer, to the effect that registration or qualification under the securities or "blue sky" laws of any state is not required in connection with such proposed disposition, or (ii) compliance with applicable state securities or "blue sky" laws has been effected or a valid exemption exists with respect thereto. The Issuer will respond to any such notice from a Holder within ten Trading Days. In the case of any proposed transfer under this Section 2(h), the Issuer will use reasonable efforts to comply with any such applicable state securities or "blue sky" laws, but shall in no event be required, (x) to qualify to do business in any state where it is not then

qualified, (y) to take any action that would subject it to tax or to the general service of process in any state where it is not then subject, or (z) to comply with state securities or "blue sky" laws of any state for which registration by coordination is unavailable to the Issuer. The restrictions on transfer contained in this Section 2(h) shall be in addition to, and not by way of limitation of, any other restrictions on transfer contained in any other Section of this Warrant. Whenever a certificate representing the Warrant Shares is required to be issued to a Holder without a legend, in lieu of delivering physical certificates representing the Warrant Shares, the Issuer shall cause its transfer agent to electronically transmit the Warrant Shares to the Holder by crediting the account of the Holder or Holder's prime broker with DTC through its DWAC system (to the extent not inconsistent with any provisions of this Warrant or the Purchase Agreement).

(i) Accredited Investor Status. The Holder is an "accredited investor" as defined in Regulation D under the Securities Act and understands that this Warrant and the Warrant Shares have not been registered under the Securities Act nor qualified under applicable state securities laws and that the Issuer's reliance on exemption from such registration is predicated on Holder's representations herein. In no event may the Holder exercise this Warrant in whole or in part unless the Holder is an "accredited investor" as defined in Regulation D under the Securities Act.

3. Shares Fully Paid; Reservation and Listing of Shares; Covenants.

(a) Shares Fully Paid; Reservation. The Issuer represents, warrants, covenants and agrees that all Warrant Shares which may be issued upon the exercise of this Warrant or otherwise hereunder will, when issued in accordance with the terms of this Warrant, be duly authorized, validly issued, fully paid and non-assessable and free from all taxes, liens and charges created by or through the Issuer. The Issuer further covenants and agrees that during the period within which this Warrant may be exercised, the Issuer will at all times have authorized and reserved for the purpose of the issuance upon exercise of this Warrant a number of authorized but unissued Common Shares equal to at least one hundred fifty (150%) of the number of Common Shares issuable upon exercise of this Warrant without regard to any limitations on exercise.

(b) Registration; Listing. If any Common Shares required to be reserved for issuance upon exercise of this Warrant or as otherwise provided hereunder require registration or qualification with any Governmental Authority under any federal or state law before such shares may be so issued, the Issuer will in good faith use its best efforts as expeditiously as possible at its expense to cause such shares to be duly registered or qualified. If the Issuer shall list any Common Shares on any securities exchange or market it will, at its expense, list thereon, and maintain and increase when necessary such listing, of, all Warrant Shares from time to time issued upon exercise of this Warrant or as otherwise provided hereunder (provided that such Warrant Shares have been registered pursuant to a registration statement under the Securities Act then in effect), and, to the extent permissible under the applicable securities exchange rules, all unissued Warrant Shares which are at any time issuable hereunder, so long as any Common Shares shall be so listed. The Issuer will also so list on each securities exchange or market, and will maintain such listing of, any other securities which the Holder of this Warrant shall be entitled to receive upon the exercise of this Warrant if at the time any securities of the same class shall be listed on such securities exchange or market by the Issuer.

(c) Covenants. The Issuer shall not by any action including, without limitation, amending the Certificate of Incorporation or the by-laws of the Issuer, or through any reorganization, transfer of assets, consolidation, merger, dissolution, issue or sale of securities or any other action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate to protect the rights of the Holder hereof. Without limiting the generality of the foregoing, the Issuer will (i) not permit the par value, if any, of its Common Shares to exceed the then effective Warrant Price, (ii) not amend or modify any provision of the Certificate of Incorporation or by-laws of the Issuer in any manner that would adversely affect the rights of the Holder, (iii) take all such action as may be reasonably necessary in order that the Issuer may validly and legally issue fully paid and nonassessable Common Shares, free from all taxes, liens, claims, encumbrances and restrictions (other than as provided herein) upon the exercise of this Warrant, and (iv) use reasonable best efforts to obtain all such authorizations, exemptions or consents from any public regulatory body having jurisdiction thereof as may be reasonably necessary to enable the Issuer to perform its obligations under this Warrant.

(d) Loss, Theft, Destruction of Warrant. Upon receipt of evidence satisfactory to the Issuer of the ownership of and the loss, theft, destruction or mutilation of any Warrant and, in the case of any such loss, theft or destruction, upon receipt of indemnity or security satisfactory to the Issuer or, in the case of any such mutilation, upon surrender and cancellation of such Warrant, the Issuer will make and deliver, in lieu of such lost, stolen, destroyed or mutilated Warrant, a new Warrant of like tenor and representing the right to purchase the number of Common Shares remaining available upon exercise of the Warrant which has been lost, stolen, destroyed or mutilated.

(e) Payment of Taxes. The Issuer will pay all transfer and issuance taxes attributable to the preparation, issuance and delivery of this Warrant (and any replacement Warrants) including, without limitation, all documentary and stamp taxes attributable to the initial issuance of the Warrant Shares issuable upon exercise of this Warrant; *provided, however*, that the Issuer shall not be required to pay any tax or taxes which may be payable in respect of any transfer involved in the issuance or delivery of any certificates representing Warrant Shares or registration of such Warrant Shares in book-entry form, as applicable, in a name other than that of the Holder in respect to which such shares are issued.

4. Adjustment of Warrant Price. The price at which such Warrant Shares may be purchased upon exercise of this Warrant and/or the number of Warrant Shares issuable shall be subject to adjustment from time to time as set forth in this Section 4. The Issuer shall give the Holder notice of any event described below which requires an adjustment pursuant to this Section 4 in accordance with the notice provisions set forth in Section 5.

(a) Recapitalization, Reorganization, Reclassification, Consolidation, Merger or Sale. In the event that the Holder has elected not to exercise this Warrant prior to the consummation of a Change of Control, so long as the Surviving Corporation pursuant to any Change of Control is a company that has a class of equity securities registered pursuant to the Securities Exchange Act of 1934, as amended, and its common shares are listed or quoted on a U.S. national securities exchange, the Surviving Corporation and/or each Person (other than the Issuer) which may be required to deliver any Securities, cash or property upon the exercise of this

Warrant as provided herein shall assume, by written instrument delivered to, and reasonably satisfactory to, the Holder of this Warrant, (A) the obligations of the Issuer under this Warrant, including, without limitation, those under the Registration Rights Agreement (as defined below) (and if the Issuer shall survive the consummation of such Change of Control, such assumption shall be in addition to, and shall not release the Issuer from, any continuing obligations of the Issuer under this Warrant), and (B) the obligation to deliver to such Holder such Securities, cash or property as, in accordance with the foregoing provisions of this Section 4(a), such Holder shall be entitled to receive, and the Surviving Corporation and/or each such Person shall have similarly delivered to such Holder an opinion of counsel for the Surviving Corporation and/or each such Person, which counsel shall be reasonably satisfactory to such Holder, or in the alternative, a written acknowledgement executed by the President or Chief Financial Officer of the Issuer, stating that this Warrant shall thereafter continue in full force and effect and the terms hereof (including, without limitation, all of the provisions of this Section 4(a)) shall be applicable to the Securities, cash or property which the Surviving Corporation and/or each such Person may be required to deliver upon any exercise of this Warrant or the exercise of any rights pursuant hereto. If following such a Change of Control, the Surviving Corporation does not have a registered class of equity securities and common shares listed on a U.S. national securities exchange as described in the first sentence of this Section 4(a), then the Holder shall be entitled to receive compensation in accordance with the terms of Section 4.13 of the Purchase Agreement.

(b) Share Dividends, Subdivisions and Combinations. If at any time the Issuer shall:

(i) make or issue or set a record date for the holders of the Common Shares for the purpose of entitling them to receive a dividend payable in, or other distribution of, Common Shares,

(ii) subdivide its outstanding Common Shares into a larger number of Common Shares, or

(iii) combine its outstanding Common Shares into a smaller number of Common Shares,

then (1) the number of Common Shares for which this Warrant is exercisable immediately after the occurrence of any such event shall be adjusted to equal the number of Common Shares which a record holder of the same number of Common Shares for which this Warrant is exercisable immediately prior to the occurrence of such event would own or be entitled to receive after the happening of such event, and (2) the Warrant Price then in effect shall be adjusted to equal (A) the Warrant Price then in effect multiplied by the number of Common Shares for which this Warrant is exercisable immediately prior to the adjustment divided by (B) the number of Common Shares for which this Warrant is exercisable immediately after such adjustment.

(c) Certain Other Distributions. If at any time the Issuer shall make or issue or set a record date for the holders of the Common Shares for the purpose of entitling them to receive any dividend or other distribution of:

(i) cash,

(ii) any evidences of its indebtedness, any shares of stock of any class or any other securities or property of any nature whatsoever (other than cash, Common Share Equivalents or Additional Common Shares), or

(iii) any warrants or other rights to subscribe for or purchase any evidences of its indebtedness, any shares of stock of any class or any other securities or property of any nature whatsoever (other than cash, Common Share Equivalents or Additional Common Shares),

then (1) the number of Common Shares for which this Warrant is exercisable shall be adjusted to equal the product of the number of Common Shares for which this Warrant is exercisable immediately prior to such adjustment multiplied by a fraction (A) the numerator of which shall be the Per Share Market Value of Common Shares at the date of taking such record and (B) the denominator of which shall be such Per Share Market Value minus the amount allocable to one share of Common Shares of any such cash so distributable and of the fair value (as determined in good faith by the Board of Directors of the Issuer and supported by an opinion from an investment banking firm mutually agreed upon by the Issuer and the Holder) of any and all such evidences of indebtedness, shares of stock, other securities or property or warrants or other subscription or purchase rights so distributable, and (2) the Warrant Price then in effect shall be adjusted to equal (A) the Warrant Price then in effect multiplied by the number of Common Shares for which this Warrant is exercisable immediately prior to the adjustment divided by (B) the number of Common Shares for which this Warrant is exercisable immediately after such adjustment. A reclassification of the Common Shares (other than a change in par value, or from par value to no par value or from no par value to par value) into Common Shares and shares of any other class of stock shall be deemed a distribution by the Issuer to the holders of its Common Shares of such shares of such other class of stock within the meaning of this Section 4(c) and, if the outstanding Common Shares shall be changed into a larger or smaller number of Common Shares as a part of such reclassification, such change shall be deemed a subdivision or combination, as the case may be, of the outstanding Common Shares within the meaning of Section 4(b).

(d) Issuance of Additional Common Shares. In the event the Issuer shall at any time following the Public Listing Date issue any Additional Common Shares (otherwise than as provided in the foregoing subsections (b) through (c) of this Section 4), at a price per share less than the Warrant Price then in effect or without consideration, then the Warrant Price upon each such issuance shall be adjusted to the price equal to the consideration per share paid for such Additional Common Shares.

(e) Issuance of Common Share Equivalents. In the event the Issuer shall at any time following the Public Listing Date take a record of the holders of its Common Shares for the purpose of entitling them to receive a distribution of, or shall in any manner (whether directly or by assumption in a merger in which the Issuer is the surviving corporation) issue or sell, any Common Share Equivalents, whether or not the rights to exchange or convert thereunder are immediately exercisable, and the price per share for which Common Shares are issuable upon such conversion or exchange shall be less than the Warrant Price in effect immediately prior to the time of such issue or sale, or if, after any such issuance of Common Share Equivalents, the price per share for which Additional Common Shares may be issuable thereafter is amended or adjusted, and such price as so amended shall be less than the Warrant Price in effect at the time of such

amendment or adjustment, then the Warrant Price then in effect shall be adjusted as provided in Section 4(d). No further adjustments of the number of Common Shares for which this Warrant is exercisable and the Warrant Price then in effect shall be made upon the actual issue of such Common Shares upon conversion or exchange of such Common Share Equivalents.

(f) Other Provisions applicable to Adjustments under this Section. The following provisions shall be applicable to the making of adjustments of the number of Common Shares for which this Warrant is exercisable and the Warrant Price then in effect provided for in this Section 4:

(i) Computation of Consideration. To the extent that any Additional Common Shares or any Common Share Equivalents (or any warrants or other rights therefor) shall be issued for cash consideration, the consideration received by the Issuer therefor shall be the amount of the cash received by the Issuer therefor, or, if such Additional Common Shares or Common Share Equivalents are offered by the Issuer for subscription, the subscription price, or, if such Additional Common Shares or Common Share Equivalents are sold to underwriters or dealers for public offering without a subscription offering, the initial public offering price (in any such case subtracting any amounts paid or receivable for accrued interest or accrued dividends and without taking into account any compensation, discounts or expenses paid or incurred by the Issuer for and in the underwriting of, or otherwise in connection with, the issuance thereof). In connection with any merger or consolidation in which the Issuer is the Surviving Corporation (other than any consolidation or merger in which the previously outstanding Common Shares of the Issuer shall be changed to or exchanged for the stock, ordinary or common shares, or other securities of another corporation), the amount of consideration therefor shall be deemed to be the fair value, as determined reasonably and in good faith by the Board, of such portion of the assets and business of the non-surviving corporation as the Board may determine to be attributable to such Common Shares or Common Share Equivalents, as the case may be. The consideration for any Additional Common Shares issuable pursuant to any warrants or other rights to subscribe for or purchase the same shall be the consideration received by the Issuer for issuing such warrants or other rights plus the additional consideration payable to the Issuer upon exercise of such warrants or other rights. The consideration for any Additional Common Shares issuable pursuant to the terms of any Common Share Equivalents shall be the consideration received by the Issuer for issuing warrants or other rights to subscribe for or purchase such Common Share Equivalents, plus the consideration paid or payable to the Issuer in respect of the subscription for or purchase of such Common Share Equivalents, plus the additional consideration, if any, payable to the Issuer upon the exercise of the right of conversion or exchange in such Common Share Equivalents. In the event of any consolidation or merger of the Issuer in which the Issuer is not the Surviving Corporation or in which the previously outstanding Common Shares of the Issuer shall be changed into or exchanged for the stock, ordinary or common shares, or other securities of another corporation, or in the event of any sale of all or substantially all of the assets of the Issuer for stock, ordinary or common shares, or other securities of any corporation, the Issuer shall be deemed to have issued a number of Common Shares for stock, ordinary or common shares, or securities or other property of the other corporation computed on the basis of the actual exchange ratio on which the transaction was predicated, and for a consideration equal to the fair market value on the date of such transaction of all such stock, ordinary or common shares, or securities or other property of the other corporation. In the event any consideration received by the Issuer for any securities consists of property other than cash, the fair market value thereof at the time of issuance or as otherwise applicable shall be

as determined in good faith by the Board. In the event Common Shares are issued with other shares or securities or other assets of the Issuer for consideration which covers both, the consideration computed as provided in this Section 4(f)(i) shall be allocated among such securities and assets as determined in good faith by the Board.

(ii) When Adjustments to Be Made. The adjustments required by this Section 4 shall be made whenever and as often as any specified event requiring an adjustment shall occur, except that any adjustment of the number of Common Shares for which this Warrant is exercisable that would otherwise be required may be postponed (except in the case of a subdivision or combination of Common Shares, as provided for in Section 4(b)) up to, but not beyond the date of exercise if such adjustment either by itself or with other adjustments not previously made adds or subtracts less than one percent of the Common Shares for which this Warrant is exercisable immediately prior to the making of such adjustment. Any adjustment representing a change of less than such minimum amount (except as aforesaid) which is postponed shall be carried forward and made as soon as such adjustment, together with other adjustments required by this Section 4 and not previously made, would result in a minimum adjustment or on the date of exercise. For the purpose of any adjustment, any specified event shall be deemed to have occurred at the close of business on the date of its occurrence.

(iii) Fractional Interests. In computing adjustments under this Section 4, fractional interests in Common Shares shall be taken into account to the nearest one hundredth (1/100th) of a share.

(iv) When Adjustment Not Required. If the Issuer shall take a record of the holders of its Common Shares for the purpose of entitling them to receive a dividend or distribution or subscription or purchase rights and shall, thereafter and before the distribution to shareholders thereof, legally abandon its plan to pay or deliver such dividend, distribution, subscription or purchase rights, then thereafter no adjustment shall be required by reason of the taking of such record and any such adjustment previously made in respect thereof shall be rescinded and annulled.

(g) Form of Warrant after Adjustments. The form of this Warrant need not be changed because of any adjustments in the Warrant Price or the number and kind of Securities purchasable upon the exercise of this Warrant.

5. **Notice of Adjustments.** Whenever the Warrant Price or Warrant Share Number shall be adjusted pursuant to Section 4 hereof (for purposes of this Section 5, each an "adjustment"), the Issuer shall cause its Chief Financial Officer to prepare and execute a certificate setting forth, in reasonable detail, the event requiring the adjustment, the amount of the adjustment, the method by which such adjustment was calculated (including a description of the basis on which the Board made any determination hereunder), and the Warrant Price and Warrant Share Number after giving effect to such adjustment, and shall cause copies of such certificate to be delivered to the Holder of this Warrant promptly after each adjustment. Any dispute between the Issuer and the Holder of this Warrant with respect to the matters set forth in such certificate may at the option of the Holder of this Warrant be submitted to a national or regional accounting firm reasonably acceptable to the Issuer and the Holder, provided that the Issuer shall have ten (10) days after receipt of notice from such Holder of its selection of such firm to object thereto, in which case

such Holder shall select another such firm and the Issuer shall have no such right of objection. The firm selected by the Holder of this Warrant as provided in the preceding sentence shall be instructed to deliver a written opinion as to such matters to the Issuer and such Holder within thirty (30) days after submission to it of such dispute. Such opinion shall be final and binding on the parties hereto. The costs and expenses of the initial accounting firm shall be paid equally by the Issuer and the Holder and, in the case of an objection by the Issuer, the costs and expenses of the subsequent accounting firm shall be paid in full by the Issuer.

6. **Fractional Shares.** No fractional Warrant Shares will be issued in connection with any exercise hereof, but in lieu of such fractional shares, the Issuer shall round the number of shares to be issued upon exercise to the nearest whole number of shares.

7. **Ownership Cap and Exercise Restriction.** Notwithstanding anything to the contrary set forth in this Warrant, at no time may a Holder of this Warrant exercise this Warrant if the number of Common Shares to be issued pursuant to such exercise would exceed, when aggregated with all other Common Shares owned by such Holder and its Affiliates at such time, the number of Common Shares which would result in such Holder and its Affiliates beneficially owning (as determined in accordance with Section 12(d) of the Exchange Act and the rules thereunder) in excess of 9.99% of the then issued and outstanding Common Shares; *provided, however*, that (a) upon a Holder of this Warrant providing the Issuer with sixty-one (61) days' notice (pursuant to Section 12 hereof) (the "Waiver Notice") that such Holder would like to waive this Section 7 with regard to any or all Common Shares issuable upon exercise of this Warrant, this Section 7 will be of no force or effect with regard to all or a portion of the Warrant referenced in the Waiver Notice until the date that the Holder notifies the Issuer (pursuant to Section 12 hereof) that the Holder revokes the Waiver Notice; *provided, further*, that during the sixty-one (61) day period prior to the expiration of the Term, the Holder may waive this Section 7 by providing a Waiver Notice at any time during such sixty-one (61) day period, and (b) at no time may a Holder of this Warrant exercise this Warrant if the number of Common Shares to be issued pursuant to such exercise would exceed, when aggregated with all other Common Shares owned by such Holder and its Affiliates at such time, the number of Common Shares which would result in such Holder and its Affiliates beneficially owning 19.99% of the issued and outstanding Common Shares immediately after giving effect to such issuance, or control in excess of 19.99% of the total voting power of the Company's securities outstanding immediately after giving effect to such issuance that are entitled to vote on a matter being voted on by holders of the Common Share (each limit referred to in this Section 7, the "Exchange Limit"), unless stockholder approval (the "Required Stockholder Approval") is not required under applicable Principal Market rules or the Company obtains stockholder approval permitting such issuances in accordance with applicable Principal Market rules. If, upon any attempted exercise of this Warrant by the Holder, the issuance of Warrant Shares would exceed the Exchange Limit, and the Company shall not have previously obtained the Required Stockholder Approval at the time of exercise, then the Company shall issue to the Holder such number of Warrant Shares as may be issued below the Exchange Limit, and, with respect to the remainder of the aggregate number of Warrant Shares (the "Excess Warrant Shares"), this Warrant shall not be exercisable until and unless the Required Stockholder Approval has been obtained. The Company shall, upon the written request of the Holder or Holders holding the Warrant or Warrants representing the right to purchase a majority of the Warrant Shares, hold a meeting of its stockholders within one hundred twenty (120) days following such request and use its commercially reasonable efforts to obtain the Required Stockholder

Approval; provided that the Holder(s) may not request such stockholder meeting more than once within any 90-day period or more than three times in total. With respect to any proxy materials delivered or otherwise made available to the Company's stockholders in connection with the foregoing, the Company shall provide the Holder(s) and their outside legal counsel with a reasonable opportunity to review and comment on drafts of such proxy materials prior to filing, furnishing or delivering such proxy materials to the applicable governmental authority and their dissemination to the Company's stockholders and incorporate in such proxy materials all comments reasonably proposed by Holder(s) or their outside legal counsel. The Company agrees that all information relating to the Holder(s), their Affiliates and their respective representatives included in the proxy materials shall be in form and content reasonably satisfactory to the Holder(s).

8. Definitions. For the purposes of this Warrant, the following terms have the following meanings:

"Additional Common Shares" means all Common Shares issued by the Issuer after the Public Listing Date, and all Other Common Shares, if any, issued by the Issuer after the Public Listing Date, except: (i) securities issued (other than for cash) in connection with a merger, acquisition, or consolidation, (ii) securities issued pursuant to the conversion or exercise of convertible or exercisable securities issued or outstanding on or prior to the date of the Purchase Agreement or issued pursuant to the Purchase Agreement (so long as the conversion or strike price in such securities are not amended to lower such price and/or adversely affect the Holder unless the issuance of shares pursuant to the Purchase Agreement results in a lower adjusted price), (iii) the Warrant Shares, (iv) securities issued in connection with bona fide strategic license agreements, consulting agreements, or other partnering or technology development arrangements so long as such issuances are not for the purpose of raising capital, (v) Common Shares issued or the issuance or grants of options to purchase Common Shares pursuant to the Issuer's option plans and employee equity purchase plans outstanding as they exist on the date of the Purchase Agreement or as subsequently approved by the Board provided that the number of Common Shares issued pursuant to such plans approved after the date of the Purchase Agreement does not exceed five percent (5%) of the Common Shares outstanding, (vi) securities issued in connection with a registered public offering, and (vii) any warrants issued to the finders, placement agents or their respective designees for the transactions contemplated by the Purchase Agreement or in subsequent offerings or placements. The exclusions set forth in this definition shall also apply to the issuance or sale of Common Share Equivalents.

"Affiliate" means, with respect to any Person, any other Person that, directly or indirectly, controls, is controlled by or is under common control with such Person. For purposes of this definition, the term "control" (including, with correlative meanings, the terms "controlling," "controlled by" and "under common control with"), as used with respect to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of that Person, whether through the ownership of voting securities, by contract or otherwise.

"Board" shall mean the Board of Directors of the Issuer.

"Business Day" means any day other than Saturday, Sunday or any other day on which commercial banks in the City of New York, New York, are authorized or required by law or executive order to close.

"Certificate of Incorporation" means the Certificate of Incorporation of the Issuer as in effect on the date hereof, and as hereafter from time to time amended, modified, supplemented or restated in accordance with the terms hereof and thereof and pursuant to applicable law.

"Change of Control" shall mean (i) the acquisition by any Person of direct or indirect beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of more than 50% of the combined voting power of the then-issued and outstanding equity of the Company; (ii) the occurrence of a merger, consolidation, reorganization, share exchange or similar corporate transaction, whether or not the Company is the Surviving Corporation, other than a transaction which would result in the Voting Shares outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into Voting Shares of the Surviving Corporation) at least 50% of the Voting Shares of the Company or such Surviving Corporation immediately after such transaction; or (iii) the sale, transfer or disposition of all or substantially all of the business and assets of the Company to any Person.

"Common Share" means the common shares of the Issuer, par value [•].

"Common Share Equivalent" means any Convertible Security or warrant, option or other right to subscribe for or purchase any Additional Common Shares or any Convertible Security.

"Convertible Securities" means evidences of indebtedness, shares of Equity Capital or other Securities which are or may be at any time convertible into or exchangeable for Additional Common Shares. The term "Convertible Security" means one of the Convertible Securities.

"Equity Capital" means and includes (i) any and all ordinary shares, stock or other common or ordinary equity shares, interests, participations or other equivalents of or interests therein (however designated), including, without limitation, shares of preferred or preference shares, (ii) all partnership interests (whether general or limited) in any Person which is a partnership, (iii) all membership interests or limited liability company interests in any limited liability company, and (iv) all equity or ownership interests in any Person of any other type.

"Governmental Authority" means any governmental, regulatory or self-regulatory entity, department, body, official, authority, commission, board, agency or instrumentality, whether federal, state or local, and whether domestic or foreign.

"Holders" mean the Persons who shall from time to time own this Warrant or any one or more Warrants issued in replacement hereof in accordance with the terms hereof. The term "Holder" means one of the Holders.

"Independent Appraiser" means a nationally recognized or major regional investment banking firm or firm of independent certified public accountants of recognized standing (which may be the firm that regularly examines the financial statements of the Issuer) that is regularly engaged in the business of appraising the Equity Capital or assets of corporations or other entities as going concerns, and which is not affiliated with either the Issuer or the Holder of any Warrant.

"Other Common Shares" means any other Equity Capital of the Issuer of any class which shall be authorized at any time after the date of this Warrant (other than Common Shares) and which shall have the right to participate in the distribution of earnings and assets of the Issuer without limitation as to amount.

"Per Share Market Value" means on any particular date (a) the last closing bid price per Common Share on such date on a registered national stock exchange on which the Common Shares are then listed, or if there is no such price on such date, then the closing price on such exchange or quotation system on the date nearest preceding such date, or (b) if the Common Shares are not listed or traded then on any registered national stock exchange, the last closing bid price for a Common Share in the over-the-counter market, as reported by the U.S. national securities exchange on which the Common Shares are traded at the close of business on such date, or (c) if the Common Shares are not then publicly traded the fair market value of a Common Share as determined by an Independent Appraiser selected in good faith by the Holder; *provided, however,* that the Issuer, after receipt of the determination by such Independent Appraiser, shall have the right to select an additional Independent Appraiser, in which case, the fair market value shall be equal to the average of the determinations by each such Independent Appraiser; and *provided, further* that all determinations of the Per Share Market Value shall be appropriately adjusted for any dividends, splits or other similar transactions during such period. The determination of fair market value by an Independent Appraiser shall be based upon the fair market value of the Issuer determined on a going concern basis as between a willing buyer and a willing seller and taking into account all relevant factors determinative of value, and shall be final and binding on all parties. In determining the fair market value of any Common Shares, no consideration shall be given to any restrictions on transfer of the Common Shares imposed by agreement or by federal or state securities laws, or to the existence or absence of, or any limitations on, voting rights.

"Person" means an individual, corporation, limited liability company, partnership, joint stock company, trust, unincorporated organization, joint venture, Governmental Authority or other entity of whatever nature.

"Principal Market" means the U.S. national securities exchange on which the Company's Common Shares are traded.

"Purchase Agreement" means the Share Purchase Agreement dated as of November 12, 2021, by and among the Issuer, GEM Yield Bahamas Limited and GEM Global Yield LLC SCS.

"Securities" means any debt or equity securities of the Issuer, whether now or hereafter authorized, any instrument convertible into or exchangeable for Securities or a Security, and any option, warrant or other right to purchase or acquire any Security. "Security" means one of the Securities.

"Securities Act" means the Securities Act of 1933, as amended, or any similar federal statute then in effect.

"Subsidiary" means any corporation at least 50% of whose outstanding Voting Shares shall at the time be owned directly or indirectly by the Issuer or by one or more of its Subsidiaries, or by the Issuer and one or more of its Subsidiaries.

"Surviving Corporation" means (a) the corporation surviving or resulting from any merger, consolidation, reorganization, share exchange or similar corporate transaction involving the Company; (b) the direct or indirect parent company of such surviving corporation; or (c) an entity that acquires all or substantially all of the business and assets of the Company.

"Term" has the meaning specified in Section 1 hereof.

"Trading Day" means a day on which the Common Shares are traded on the Principal Market; *provided, however*, that in the event that the Common Shares are not listed or quoted as set forth in the foregoing clause, then Trading Day shall mean any day except Saturday, Sunday and any day which shall be a legal holiday or a day on which banking institutions in the State of New York are authorized or required by law or other government action to close.

"Voting Shares" means, as applied to the Equity Capital of any corporation, Equity Capital of any class or classes (however designated) having voting power for the election of a majority of the members of the Board of Directors (or other governing body) of such corporation, other than Equity Capital having such power only by reason of the happening of a contingency.

"Warrant Price" means the strike price set forth in the first paragraph of this Warrant, as such price may be adjusted from time to time as shall result from the adjustments specified in this Warrant, including Section 4 hereto.

"Warrant Share Number" means at any time the aggregate number of Warrant Shares which may at such time be purchased upon exercise of this Warrant, after giving effect to all prior adjustments and increases to such number made or required to be made under the terms hereof.

"Warrant Shares" means Common Shares issuable upon exercise of this Warrant.

9. Other Notices. In case at any time:

(a) the Issuer shall make any distributions to the holders of Common Shares; or

(b) the Issuer shall authorize the granting to all holders of its Common Shares of rights to subscribe for or purchase any shares of Equity Capital of any class or other rights; or

(c) there shall be any reclassification of the Equity Capital of the Issuer; or

(d) there shall be any capital reorganization by the Issuer; or

(e) there shall be any (i) consolidation or merger involving the Issuer or (ii) sale, transfer or other disposition of all or substantially all of the Issuer's property, assets or business (except a merger or other reorganization in

which the Issuer shall be the surviving corporation and its shares of Equity Capital shall continue to be outstanding and unchanged and except a consolidation, merger, sale, transfer or other disposition involving a wholly-owned Subsidiary); or

(f) there shall be a voluntary or involuntary dissolution, liquidation or winding-up of the Issuer or any partial liquidation of the Issuer or distribution to holders of Common Shares;

then, in each such case, the Issuer shall, to the extent permitted by law, give written notice to the Holder of the date on which (i) the books of the Issuer shall close or a record shall be taken for such dividend, distribution or subscription rights or (ii) such reorganization, reclassification, consolidation, merger, disposition, dissolution, liquidation or winding-up, as the case may be, shall take place. Such notice also shall specify the date as of which the holders of Common Shares of record shall participate in such dividend, distribution or subscription rights, or shall be entitled to exchange their Common Shares for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, disposition, dissolution, liquidation or winding-up, as the case may be. To the extent permitted by law, such notice shall be given prior to the action in question and not less than five (5) days prior to the record date or the date on which the Issuer's transfer books are closed in respect thereto. This Warrant entitles the Holder to receive copies of all financial and other information distributed or required to be distributed to the holders of the Common Shares.

10. Amendment and Waiver. Any term, covenant, agreement or condition in this Warrant may be amended, or compliance therewith may be waived (either generally or in a particular instance and either retroactively or prospectively), by a written instrument or written instruments executed by the Issuer and the Holder.

11. Governing Law; Jurisdiction. This Warrant shall be governed by and construed in accordance with the internal laws of the State of New York, without giving effect to any of the conflicts of law principles which would result in the application of the substantive law of another jurisdiction. This Warrant shall not be interpreted or construed with any presumption against the party causing this Warrant to be drafted. The Issuer and the Holder agree that venue for any dispute arising under this Warrant will lie exclusively in the state or federal courts located in New York, and the parties irrevocably waive any right to raise *forum non conveniens* or any other argument that New York is not the proper venue. The Issuer and the Holder irrevocably consent to personal jurisdiction in the state and federal courts of the state of New York. The Issuer and the Holder consent to process being served in any such suit, action or proceeding by sending by electronic mail a copy thereof to such party at the address in effect for notices to it under this Warrant and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing in this Section 11 shall affect or limit any right to serve process in any other manner permitted by law. **THE ISSUER AND THE HOLDER HEREBY AGREE THAT THE PREVAILING PARTY IN ANY SUIT, ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS WARRANT OR THE PURCHASE AGREEMENT, SHALL BE ENTITLED TO REIMBURSEMENT FOR REASONABLE LEGAL FEES FROM THE NON-PREVAILING PARTY. THE PARTIES HEREBY WAIVE ALL RIGHTS TO A TRIAL BY JURY.**

12. Notices. Any notice, demand, request, waiver or other communication required or permitted to be given hereunder shall be delivered in writing by electronic mail, return receipt requested, properly addressed to the party to receive the same. The email addresses for such communications shall be:

If to the Company:	FIBROBIOLOGICS LLC Attn: Pete O'Heeron Email: pete.oheeron@fibrobiologics.com
If to GEM:	GEM Yield Bahamas Ltd. Attn: Christopher F. Brown, Manager Email: cbrown@gemny.com
With a copy (which shall not constitute notice) to:	Gibson, Dunn & Crutcher LLP Attn: Boris Dolgonos Email: bdolgonos@gibsondunn.com

Any party hereto may from time to time change its address for notices by giving written notice of such changed address to the other party hereto.

13. Warrant Agent. The Issuer may, by written notice to each Holder of this Warrant, appoint an agent having an office in New York, New York for the purpose of issuing Warrant Shares on the exercise of this Warrant pursuant to Section 2(b) above, exchanging this Warrant pursuant to Section 2(c) above or replacing this Warrant pursuant to Section 3(d) above, or any of the foregoing, and thereafter any such issuance, exchange or replacement, as the case may be, shall be made at such office by such agent.

14. Remedies. The Issuer stipulates that the remedies at law of the Holder of this Warrant in the event of any default or threatened default by the Issuer in the performance of or compliance with any of the terms of this Warrant are not and will not be adequate and that, to the fullest extent permitted by law, such terms may be specifically enforced by a decree for the specific performance of any agreement contained herein or by an injunction against a violation of any of the terms hereof or otherwise.

15. Successors and Assigns. This Warrant and the rights evidenced hereby shall inure to the benefit of and be binding upon the successors and permitted assigns of the Issuer (including any Successor Company as set forth in the Purchase Agreement), the Holder hereof and (to the extent provided herein) the Holders of Warrant Shares issued pursuant hereto, and shall be enforceable by any such Holder or Holder of Warrant Shares.

16. Modification and Severability. If, in any action before any court or agency legally empowered to enforce any provision contained herein, any provision hereof is found to be unenforceable, then such provision shall be deemed modified to the extent necessary to make it enforceable by such court or agency. If any such provision is not enforceable as set forth in the preceding sentence, the unenforceability of such provision shall not affect the other provisions of this Warrant, but this Warrant shall be construed as if such unenforceable provision had never been contained herein.

17. Headings. The headings of the Sections of this Warrant are for convenience of reference only and shall not, for any purpose, be deemed a part of this Warrant.

18. Registration Rights. The Holder of this Warrant is entitled to the benefit of certain registration rights with respect to the Warrant Shares issuable upon the exercise of this Warrant pursuant to that certain Registration Rights Agreement, of even date herewith, by and among the Issuer and the Holder (the "Registration Rights Agreement") and the registration rights with respect to the Warrant Shares issuable upon the exercise of this Warrant by any subsequent Holder may only be assigned in accordance with the terms and provisions of the Registration Rights Agreement.

19. Counterparts. The execution and delivery of counterpart signature pages to this Warrant via electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 200, *e.g.*, www.docusign.com) or facsimile shall constitute such party's effective execution and delivery of this Warrant and agreement to and acceptance of the terms hereof for all purposes.

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IN WITNESS WHEREOF, the Issuer has executed this Warrant as of the day and year first above written.

FIBROBIOLOGICS LLC

By: _____
Name:
Title:

EXERCISE FORM
WARRANT

FIBROBIOLOGICS LLC

The undersigned _____, pursuant to the provisions of the within Warrant, hereby elects to purchase _____ Common Shares covered by the within Warrant.

Dated: _____ Signature _____

Address _____
_____

Number of Common Shares beneficially owned or deemed beneficially owned by the Holder on the date of exercise: _____

The undersigned is an "accredited investor" as defined in Regulation D under the Securities Act of 1933, as amended.

The undersigned intends that payment of the Warrant Price shall be made as (check one):

Cash Exercise_____

Cashless Exercise_____

If the Holder has elected a cash exercise, the Holder shall pay the sum of $_____ by certified or official bank check (or via wire transfer) to the Issuer in accordance with the terms of the Warrant.

If the Holder has elected a cashless exercise, a certificate shall be issued to the Holder for the number of shares (or such number of shares shall be registered in book-entry form in the name of the Holder, as applicable) equal to the whole number portion of the product of the calculation set forth below, which is _____. The Company shall pay a cash adjustment in respect of the fractional portion of the product of the calculation set forth below in an amount equal to the product of the fractional portion of such product and the Per Share Market Value on the date of exercise, which product is _____.

Where: $X = Y - \frac{(A)(Y)}{B}$

The number of Common Shares to be issued to the Holder _____ ("X").

The number of Common Shares purchasable upon exercise of all of the Warrant or, if only a portion of the Warrant is being exercised, the portion of the Warrant being exercised _____ ("Y").

The Warrant Price _____ ("A").

The Per Share Market Value of one Common Share _____ ("B").

ASSIGNMENT

FOR VALUE RECEIVED, _____ hereby sells, assigns and transfers unto _____ the within Warrant and all rights evidenced thereby and does irrevocably constitute and appoint _____, attorney, to transfer the said Warrant on the books of the within named corporation.

Dated: _____ Signature _____

Address _____

_____

PARTIAL ASSIGNMENT

FOR VALUE RECEIVED, _____ hereby sells, assigns and transfers unto _____ the right to purchase _____ Warrant Shares evidenced by the within Warrant together with all rights therein, and does irrevocably constitute and appoint _____, attorney, to transfer that part of the said Warrant on the books of the within named corporation.

Dated: _____ Signature _____

Address _____

_____

FOR USE BY THE ISSUER ONLY:

This Warrant No. W-___ canceled (or transferred or exchanged) this _____ day of _____, _____. Common Shares issued therefor in the name of _____, Warrant No. W-_____ issued for ____ Common Shares in the name of _____.

EXHIBIT C

FORM OF COMPANY CLOSING CERTIFICATE

[*See attached.*]

CLOSING CERTIFICATE

OF

FIBROBIOLOGICS LLC

November 12, 2021

Reference is made to the Share Purchase Agreement (the "Purchase Agreement"), of even date herewith, by and among FIBROBIOLOGICS LLC, a Delaware limited liability company and having a principal place of business at 16815 Royal Crest Drive, Suite 100, Houston, TX 77058 (the "Company"); GEM GLOBAL YIELD LLC SCS, a "société en commandite simple" formed under the laws of Luxembourg having LEI No. 213800CXBEHFXVLBZO92 having an address at 12C, rue Guillaume J. Kroll, L-1882 Luxembourg ("Purchaser"); and GEM YIELD BAHAMAS LIMITED, a limited company formed under the laws of the Commonwealth of the Bahamas and having an address at 3 Bayside Executive Park, West Bay Street & Blake Road, P.O. Box N-4875, Nassau, The Bahamas ("GYBL"). Capitalized terms not defined herein shall have the meanings given them in the Purchase Agreement.

Pursuant to Section 5.01 of the Purchase Agreement, the undersigned hereby certifies that he is a Director of the Company, and that, as such, he is authorized to execute and deliver this certificate in the name and on behalf of the Company in connection with the execution and delivery of the Purchase Agreement and that certain Registration Rights Agreement by and among the Parties, in each case as of even date herewith (collectively, the "Transaction Documents"), as well as the transactions contemplated thereby (the "Transactions"), to which this certificate relates, and further certifies in his official capacity, in the name and on behalf of the Company, the items set forth below.

1. Attached hereto as Exhibit A is a true, correct and complete copy of action of the Board of Managers of the Company taken by written consent, dated November 10, 2021 authorizing and ordering the Transactions and the Company's performance thereof, as well as the execution and delivery of the Transaction Documents, this certificate, and other instruments ancillary thereto. The resolutions contained in Exhibit A have not in any way been amended, modified, revoked or rescinded, have been in full force and effect since their adoption to and including the date hereof and are now in full force and effect.

2. Attached hereto as Exhibit B is a true, correct and complete copy of the Certificate of Formation of the Company, together with any and all amendments thereto, and no action has been taken to further amend, modify or repeal such Limited Liability Company Agreement, the same being in full force and effect in the attached form as of the date hereof.

3. Attached hereto as Exhibit C is a true, correct and complete copy of the Regulations of the Company, together with any and all amendments thereto, and no action has been taken to further amend, modify or repeal such Bylaws, the same being in full force and effect in the attached form as of the date hereof.

4. The Company is validly existing and in good standing under the laws of the State of Delaware, and there are no pending winding up, liquidation or dissolution actions or proceedings by or against the Company.

5. Each person listed below has been duly elected or appointed to the position(s) indicated opposite his name and is duly authorized to sign the Purchase Agreement and each of the Transaction Documents on behalf of the Company.

Name	Position
Pete O'Heeron	Chief Executive Officer

6. The Company has all requisite limited liability company and legal power and authority to own and operate its assets and to carry on its business as it is now being conducted and to enter into and perform its obligations under the Transaction Documents.

7. All limited liability company proceedings of the Company necessary to be taken in connection with the authorization, execution and delivery by the Company of, and the performance by the Company of its obligations under, the Transaction Documents have been duly taken, and all such authorizations are presently in effect.

8. Each of the Transaction Documents has been duly executed and delivered by the Company and constitutes the valid and binding obligation of the Company, enforceable against the Company in accordance with its terms.

9. The undersigned has made due inquiry of all persons deemed necessary or appropriate to verify or confirm the statements contained herein.

10. The undersigned is duly authorized and empowered by all limited liability company action to make this certification on behalf and in the name of the Company.

11. The registered office of the Company is located at 16815 Royal Crest Drive, Suite 100, Houston, TX 77058.

IN WITNESS WHEREOF, the undersigned, being the duly elected and acting Chief Executive Officer of the Company, has executed this certificate as of the date first set forth above.

FIBROBIOLOGICS LLC

By: _____
Name:
Its:

EXHIBIT D

FORM OF COMPANY COMPLIANCE CERTIFICATE

[*See attached.*]

COMPLIANCE CERTIFICATE

OF

FIBROBIOLOGICS LLC

Reference is made to that certain Share Purchase Agreement (the "Agreement"), dated as of November 12, 2021, by and among FIBROBIOLOGICS LLC, a Delaware limited liability company and having a principal place of business at 16815 Royal Crest Drive, Suite 100, Houston, TX 77058 (the "Company"), GEM GLOBAL YIELD LLC SCS, a "société en commandite simple" formed under the laws of Luxembourg having LEI No. 213800CXBEHFXVLBZO92 having an address at 12C, rue Guillaume J. Kroll, L-1882 Luxembourg ("Purchaser"); and GEM YIELD BAHAMAS LIMITED, a limited company formed under the laws of the Commonwealth of the Bahamas and having an address at 3 Bayside Executive Park, West Bay Street & Blake Road, P.O. Box N-4875, Nassau, The Bahamas ("GYBL"). Terms capitalized but not defined herein have the meanings given them in the Agreement.

Pursuant to Section 5.03(d) of the Agreement, the undersigned director of the Company, for and on behalf of the Company, in his or her capacity as officer of the Company and not in any individual capacity, hereby certifies as follows:

This certificate is delivered together with a Draw Down Notice in connection with a Draw Down exercise. The Company has performed, satisfied and complied in all material respects with all covenants, agreements and conditions required by the Agreement and each other Transaction Document to be performed, satisfied or complied with by the Company at or prior to the Draw Down Exercise Date, and shall have performed, satisfied or complied with all of the same as of the Settlement Date in respect of the Draw Down for which this certificate and the related Draw Down Notice are delivered.

IN WITNESS WHEREOF, the undersigned, being a duly elected and acting officer of the Company, has executed this Compliance Certificate as of the date set forth below.

FIBROBIOLOGICS LLC

By: _____
Name:
Title:

Date: _____

EXHIBIT E

SHARE PURCHASE AGREEMENT
FORM OF DRAW DOWN NOTICE

Reference is made to the Share Purchase Agreement dated as of November 12, 2021, (the "Purchase Agreement") by and among FIBROBIOLOGICS LLC, a Delaware limited liability company and having a principal place of business at 16815 Royal Crest Drive, Suite 100, Houston, TX 77058; GEM GLOBAL YIELD LLC SCS, a "société en commandite simple" formed under the laws of Luxembourg having LEI No. 213800CXBEHFXVLBZO92 having an address at 12C, rue Guillaume J. Kroll, L-1882 Luxembourg; and GEM YIELD BAHAMAS LIMITED, a limited company formed under the laws of the Commonwealth of the Bahamas and having an address at 3 Bayside Executive Park, West Bay Street & Blake Road, P.O. Box N-4875, Nassau, The Bahamas. Capitalized terms used and not otherwise defined herein shall have the meanings given such terms in the Purchase Agreement.

In accordance with and pursuant to Section 6.01 of the Purchase Agreement, the Company hereby issues this Draw Down Notice to exercise a Draw Down request for the Draw Down Amount indicated below.

Draw Down Amount Requested: _____

Draw Down Pricing Period start date: _____

Draw Down Pricing Period end date: _____

Settlement Date: _____

Draw Down Threshold Price: _____

Dollar Amount and Number of Shares Currently Unissued under the Registration Statement: _____

Dollar Amount and Number of Shares Currently Available under the Aggregate Limit: _____

Dated: _____

By: FIBROBIOLOGICS LLC

_____
Name:
Title:
Address:

EXHIBIT F

FORM OF CLOSING NOTICE

To:

FIBROBIOLOGICS LLC
16815 Royal Crest Drive, Suite 100
Houston, TX 77058

Attention:

We refer to the share purchase agreement (the "Agreement") dated November 12, 2021 by and among us, GEM Global Yield LLC SCS and GEM Yield Bahamas Ltd., and yourselves and to the Draw Down Notice delivered to us on _____ 20___. Terms defined in the Agreement have the same meaning herein.

We hereby give you notice pursuant to Section 6.01(i) of the Agreement that we accept the Draw Down Notice, being _____ percent of the Draw Down Amount stated therein. [The reason that such number of Shares represents a smaller/greater number than the number of Shares set forth in the Draw Down Notice is as follows: _____.]

The average of the closing bid prices in the Draw Down Pricing Period (excluding any closing bid prices pursuant to Section 6.01(g)) is _____ and the resulting Purchase Price is _____ (____ percent. of such average closing bid price). The aggregate Purchase Price pursuant to this Closing Notice is therefore _____. Copy extracts from Bloomberg showing each of the closing bid prices during the Draw Down Pricing Period are attached.

Please deliver such Shares in accordance with the following instructions: _____
_____

Electronic book entry transfer requested (check one): YES ____ NO _____

[CREST] Participant ID: _____

[CREST] Account ID: _____

Signed by: _____

Name: _____

Date: _____

For and on behalf of

GEM GLOBAL YIELD LLC SCS

Exhibit 10.4

REGISTRATION RIGHTS AGREEMENT

November 12, 2021

This **REGISTRATION RIGHTS AGREEMENT** (this "Agreement"), is made and entered into as of the date first above written, by and among FIBROBIOLOGICS LLC, a Delaware limited liability company and having a principal place of business at 16815 Royal Crest Drive, Suite 100, Houston, TX 77058 (the "Company"), GEM GLOBAL YIELD LLC SCS, a "société en commandite simple" formed under the laws of Luxembourg having LEI No. 213800CXBEHFXVLBZO92 having an address at 12C, rue Guillaume J. Kroll, L-1882 Luxembourg ("Purchaser"); and GEM YIELD BAHAMAS LIMITED, a limited company formed under the laws of the Commonwealth of the Bahamas and having an address at 3 Bayside Executive Park, West Bay Street & Blake Road, P.O. Box N-4875, Nassau, The Bahamas ("GYBL," and together with Purchaser, the "Parties"). Capitalized terms used herein and not otherwise defined herein shall have the respective meanings set forth in the Purchase Agreement (as defined below).

RECITALS

WHEREAS, the Company has offered GYBL the right to place with Purchaser up to U.S. $100,000,000 worth of Common Shares, as well as Common Shares underlying a warrant that will be granted to GYBL upon a Public Listing; and

WHEREAS, the Parties have agreed, upon the terms and subject to the conditions of that certain Share Purchase Agreement, dated as of the date hereof (the "Purchase Agreement") to the purchase and sale of such Common Shares and, to induce the Purchaser to enter into the Purchase Agreement, the Company has agreed to provide certain registration rights under the Securities Act of 1933, as amended, and the rules and regulations thereunder, or any similar successor statute (collectively, the "Securities Act"), and applicable state securities laws.

NOW, THEREFORE, in consideration of the promises and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound hereby, the Company and the Purchaser hereby agree as follows:

1. **Definitions.**

As used in this Agreement, the following terms shall have the following meanings:

(a) "Business Day" means any day other than Saturday, Sunday or any other day on which commercial banks in New York, New York are authorized or required by law to remain closed.

(b) "Commission" means the United States Securities and Exchange Commission.

(c) "Effective Date" means the date that the Registration Statement has been declared effective by the Commission or that it went effective pursuant to Section 8 of the Securities Act.

(d) "Effectiveness Deadline" means with respect to the Registration Statement, the earlier of (A) the 60th calendar day after the earlier of (1) the Filing Deadline and (2) the date on which such Registration Statement is filed with the Commission and (B) the fifth Business Day after the date the Company is notified (orally or in writing, whichever is earlier) by the Commission that such Registration Statement will not be reviewed or will not be subject to further review, unless the Company is advised by the Commission that it will not accept an acceleration request for such Registration Statement but that it would not prevent such Registration Statement from becoming effective pursuant to Section 8 of the Securities Act, in which case the 25th calendar day after the Company is advised by the Commission that it will not accept an acceleration request for such Registration Statement but that it would not prevent such Registration Statement from becoming effective pursuant to Section 8 of the Securities Act.

(e) "Filing Deadline" means with respect to the Registration Statement, (i) the 30th (thirtieth) calendar day after the Public Listing Date for the Warrant Shares, and (ii) the 180th (one-hundred eightieth) calendar day after the Public Listing Date for the Common Shares issuable upon exercise of any Draw Down.

(f) "Investor" means the Purchaser, GYBL, and any transferee or assignee thereof to which either of Purchaser or GYBL assigns its rights under this Agreement and who agrees to become bound by the provisions of this Agreement in accordance with Section 9 and any transferee or assignee thereof to whom a transferee or assignee assigns its rights under this Agreement and who agrees to become bound by the provisions of this Agreement in accordance with Section 9.

(g) "Legal Counsel" means legal counsel designated by Investor to review and oversee the Registration Statement and all New Registration Statements on Investors' behalf.

(h) "Person" means any person or entity including but not limited to any corporation, a limited liability company, an association, a partnership, an organization, a business, an individual, a governmental or political subdivision thereof or a governmental agency.

(i) "Register," "registered," and "registration" refer to a registration effected by preparing and filing one or more registration statements of the Company in compliance with the Securities Act and pursuant to Rule 415 under the Securities Act or any successor rule providing for offering securities on a continuous basis ("Rule 415"), and the declaration or ordering of effectiveness of such registration statement(s) by the Commission.

(j) "Registrable Securities" mean all of (i) the Shares which have been, or which may from time to time be, issued or issuable to the Investor pursuant to the Purchase Agreement; (ii) the Shares which have been, or which may from time to time be, issued or issuable pursuant to the Warrant; or (iii) any securities issued or issuable upon any share split, dividend or other distribution, recapitalization or similar event with respect to the foregoing; provided that the Shares shall cease to be Registrable Securities upon a sale pursuant to a Registration Statement or

Rule 144 under the Securities Act (in which case, only such security sold shall cease to be a Registrable Security).

(k) "Registration Statement" means a registration statement or registration statements of the Company filed under the Securities Act covering the resale by the Investor of Registrable Securities, as such registration statement or registration statements may be amended and supplemented from time to time (including pursuant to Rule 462(b) under the Securities Act), including all documents filed as part thereof or incorporated by reference therein.

(l) "Rule 144" means Rule 144 promulgated by the Commission under the Securities Act, as such rule may be amended from time to time, or any other similar or successor rule or regulation of the Commission that may at any time permit the Investor to sell securities of the Company to the public without registration.

(m) "Rule 415" means Rule 415 promulgated by the Commission under the Securities Act, as such rule may be amended from time to time, or any other similar or successor rule or regulation of the Commission providing for offering securities on a delayed or continuous basis.

2. Registration.

(a) Mandatory Registration. In the event that the Company completes a Public Listing, then the Company shall prepare and, as soon as practicable, but in no event later than the Filing Deadline, file with the Commission an initial Registration Statement on Form S-1 or S-3, or such other form or forms as may be reasonably acceptable to the Investor and Legal Counsel, covering the resale by the Investor of Registrable Securities. The Registration Statement shall register with the Commission for resale all of the Registrable Securities. The Investor and Legal Counsel shall have a reasonable opportunity to review and comment upon such Registration Statement or amendment to such Registration Statement and any related prospectus prior to its filing with the Commission. The Investor shall furnish all information reasonably requested by the Company for inclusion therein. The Company shall use commercially reasonable best efforts to have the Registration Statement or amendment declared effective by the Commission prior to the Effectiveness Deadline. Subject to Allowable Grace Periods (as defined herein below), the Company shall use commercially reasonable efforts to keep the Registration Statement effective pursuant to Rule 415 promulgated under the Securities Act and available for sales of all of the Registrable Securities at all times until the date as of which the Investor no longer owns any Registrable Securities (the "Registration Period"). The Registration Statement (including any amendments or supplements thereto and prospectuses contained therein) shall not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein, or necessary to make the statements therein, in light of the circumstances in which they were made, not misleading. Notwithstanding anything to the contrary stated herein, in addition to any other remedies available at law or equity or as set forth herein, in the Purchase Agreement or otherwise, if (i) the Company shall have failed to file the Registration Statement by the Filing Deadline or (ii) the Registration Statement is not declared effective by the Effectiveness Deadline, in each case, for any reason or no reason, then the Company shall pay to Purchaser or its designee an amount equal to $10,000 for each day following the Filing Deadline or Effectiveness Deadline, as

applicable, until the Registration Statement has been filed with the Commission or the Registration Statement has been declared effective, as applicable.

(b) Rule 424 Prospectus. The Company shall, as required by applicable securities regulations, from time to time file with the Commission, pursuant to Rule 424 promulgated under the Securities Act, the prospectus, amendments and prospectus supplements, if any, to be used in connection with sales of the Registrable Securities under the Registration Statement. The Investor and its counsel shall have a reasonable opportunity to review and comment upon such prospectus prior to its filing with the Commission. The Investor shall use its reasonable best efforts to comment upon such prospectus within two Trading Days from the date the Investor receives the proposed final version of such prospectus.

(c) Sufficient Number of Shares Registered. In the event the number of shares available under the Registration Statement is insufficient to cover all of the Registrable Securities, the Company shall file one or more additional Registration Statements (each a "New Registration Statement"), so as to cover all of such Registrable Securities as soon as practicable, but in any case not later than twenty (20) Trading Days after the necessity therefor arises. The Company shall use commercially reasonable efforts to cause each such New Registration Statement to become effective as soon as practicable following the filing thereof.

(d) Piggyback Registrations. Without limiting any of the Company's obligations hereunder or under the Purchase Agreement, if there is not an effective Registration Statement covering all of the Registrable Securities and the Company shall determine to prepare and file with the Commission a registration statement relating to an offering for its own account or the account of others under the Securities Act of any of its equity securities (other than on Form S-4 or Form S-8 (each as promulgated under the Securities Act) or their then equivalents relating to equity securities to be issued solely in connection with any acquisition of any entity or business or equity securities issuable in connection with the Company's option or other employee benefit plans), then the Company shall deliver to the Investor a written notice of such determination and, if within five days after the date of the delivery of such notice, the Investor shall so request in writing, the Company shall include in such registration statement all or any part of such Registrable Securities the offer and sale of which the Investor requests to be registered; provided, however, that the foregoing shall not apply to a registration in respect of the Company's Public Listing.

(e) No Inclusion of Other Securities. In no event shall the Company include any securities other than Registrable Securities on any Registration Statement pursuant to Section 2(a) or 2(c) without the prior written consent of the Investor.

(f) Offering. If the staff of the Commission (the "Staff") or the Commission seeks to characterize any offering pursuant to a Registration Statement filed pursuant to this Agreement as constituting an offering of securities that does not permit such Registration Statement to become effective and be used for resales by the Investor on a delayed or continuous basis under Rule 415 at then-prevailing market prices (and not fixed prices) (or as otherwise may be acceptable to the Investor), or if after the filing of the initial Registration Statement with the Commission pursuant to Section 2(a), the Company is otherwise required by the Staff or the Commission to reduce the number of Registrable Securities included in such initial Registration Statement, then the Company shall reduce the number of Registrable Securities to be included in

such initial Registration Statement (with the prior consent of the Investor and Legal Counsel as to the specific Registrable Securities to be removed therefrom, which consent shall not be unreasonably withheld, delayed, denied, or conditioned) until such time as the Staff and the Commission shall so permit such Registration Statement to become effective and be used as aforesaid. Notwithstanding anything in this Agreement to the contrary, if after giving effect to the actions referred to in the immediately preceding sentence, the Staff or the Commission does not permit such Registration Statement to become effective and be used for resales by the Investor on a delayed or continuous basis under Rule 415 at then-prevailing market prices (and not fixed prices) (or as otherwise may be acceptable to the Investor), the Company shall not request acceleration of the Effective Date of such Registration Statement and, in its sole and absolute discretion, may take such steps as may be required for such Registration Statement to become effective pursuant to Section 8 of the Securities Act. If not, the Company shall promptly (but in no event later than 48 hours) request the withdrawal of such Registration Statement pursuant to Rule 477 under the Securities Act, and the Effectiveness Deadline shall automatically be deemed to have elapsed with respect to such Registration Statement at such time as the Staff or the Commission has made a final and non-appealable determination that the Commission will not permit such Registration Statement to be so utilized (unless prior to such time the Company and the Investor have received assurances from the Staff or the Commission reasonably acceptable to Legal Counsel that a new Registration Statement filed by the Company with the Commission promptly thereafter may be so utilized). In the event of any reduction in Registrable Securities pursuant to this paragraph, the Company shall file additional Registration Statements in accordance with Section 2(c) until such time as all Registrable Securities have been included in Registration Statements that have been declared effective and the prospectus contained therein is available for use by the Investor. Notwithstanding any provision herein or in the Purchase Agreement to the contrary, the Company's obligations to register Registrable Securities (and any related conditions to the Investor's obligations) shall be qualified as necessary to comport with any requirement of the Commission or the Staff as addressed in this Section 2(f).

3. Related Obligations. With respect to the Registration Statement and whenever any Registrable Securities are to be registered pursuant to Section 2 including on any New Registration Statement, the Company shall use commercially reasonable efforts to effect the registration of the Registrable Securities in accordance with the intended method of disposition thereof and, pursuant thereto, the Company shall have the following obligations:

(a) The Company shall prepare and file with the Commission such amendments (including post-effective amendments) and supplements to any registration statement and any prospectus and prospectus supplement used in connection with such registration statement, which prospectus is to be filed pursuant to Rule 424 promulgated under the Securities Act, as may be necessary to keep the Registration Statement or any New Registration Statement effective at all times during the Registration Period, and, during such period, comply with the provisions of the Securities Act with respect to the disposition of all Registrable Securities of the Company covered by the Registration Statement or any New Registration Statement until such time as all of such Registrable Securities shall have been disposed of in accordance with the intended methods of disposition by the seller or sellers thereof as set forth in such registration statement.

(b) The Company shall permit the Investor to review and comment upon the Registration Statement or any New Registration Statement and all amendments and supplements

thereto at least two Trading Days prior to their filing with the Commission, and not file any document in a form to which Investor reasonably objects. The Investor shall use its commercially reasonable efforts to comment upon the Registration Statement or any New Registration Statement and any amendments or supplements thereto within two (2) Trading Days from the date the Investor receives the final version thereof. The Company shall furnish to the Investor, without charge, any correspondence from the Commission or the Staff to the Company or its representatives relating to the Registration Statement or any New Registration Statement.

(c) Upon request of the Investor, the Company shall furnish to the Investor, (i) promptly after the same is prepared and filed with the Commission, at least one copy of such registration statement and any amendment(s) thereto, including financial statements and schedules, all documents incorporated therein by reference and all exhibits; (ii) upon the effectiveness of any registration statement, a copy of the prospectus included in such registration statement and all amendments and supplements thereto (or such other number of copies as the Investor may reasonably request); and (iii) such other documents, including copies of any preliminary or final prospectus, as the Investor may reasonably request from time to time in order to facilitate the disposition of the Registrable Securities owned by the Investor. For the avoidance of doubt, any filing available to the Investor via the Commission's live EDGAR system shall be deemed "furnished to the Investor" hereunder.

(d) The Company shall use commercially reasonable efforts to (i) register and qualify the Registrable Securities covered by a registration statement under such other securities or "blue sky" laws of such jurisdictions in the United States as the Investor reasonably requests; (ii) prepare and file in those jurisdictions, such amendments (including post-effective amendments) and supplements to such registrations and qualifications as may be necessary to maintain the effectiveness thereof during the Registration Period; (iii) take such other actions as may be necessary to maintain such registrations and qualifications in effect at all times during the Registration Period; and (iv) take all other actions reasonably necessary or advisable to qualify the Registrable Securities for sale in such jurisdictions; *provided, however*, that the Company shall not be required in connection therewith or as a condition thereto to (x) qualify to do business in any jurisdiction where it would not otherwise be required to qualify but for this Section 3(d), (y) subject itself to general taxation in any such jurisdiction, or (z) file a general consent to service of process in any such jurisdiction. The Company shall promptly notify the Investor who holds Registrable Securities of the receipt by the Company of any notification with respect to the suspension of the registration or qualification of any of the Registrable Securities for sale under the securities or "blue sky" laws of any jurisdiction in the United States or its receipt of actual notice of the initiation or threatening of any proceeding for such purpose.

(e) As promptly as practicable after becoming aware of such event or facts, the Company shall notify the Investor in writing of the happening of any event or existence of such facts as a result of which the prospectus included in any registration statement, as then in effect, includes an untrue statement of a material fact or omits to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading, and promptly prepare a supplement or amendment to such registration statement to correct such untrue statement or omission, and deliver a copy of such supplement or amendment to the Investor (or such other number of copies as the Investor may reasonably request). The Company shall also promptly notify the Investor in writing (i) when a prospectus or

any prospectus supplement or post-effective amendment has been filed, and when a registration statement or any post-effective amendment has become effective (notification of such effectiveness shall be delivered to the Investor by email on the same day of such effectiveness); (ii) of any request by the Commission for amendments or supplements to any registration statement or related prospectus or related information; and (iii) of the Company's reasonable determination that a post-effective amendment to a registration statement would be appropriate.

(f) The Company shall use commercially reasonable efforts to prevent the issuance of any stop order or other suspension of effectiveness of any registration statement, or the suspension of the qualification of any Registrable Securities for sale in any jurisdiction and, if such an order or suspension is issued, to obtain the withdrawal of such order or suspension at the earliest possible moment and to notify the Investor of the issuance of such order and the resolution thereof or its receipt of actual notice of the initiation or threat of any proceeding for such purpose.

(g) The Company shall (i) cause all the Registrable Securities to be listed on each securities exchange on which securities of the same class or series issued by the Company are then listed, if any, if the listing of such Registrable Securities is then permitted under the rules of such exchange; or (ii) secure designation and quotation of all the Registrable Securities on the Principal Market. The Company shall pay all fees and expenses in connection with satisfying its obligation under this Section.

(h) The Company shall comply with the Purchase Agreement and the Warrant with respect to the issuance of Registrable Securities.

(i) The Company shall at all times maintain the services of a transfer agent and registrar with respect to its Common Shares.

(j) If reasonably requested by the Investor, the Company shall (i) as soon as practicable after receipt of written notice from the Investor, incorporate in a prospectus supplement or post-effective amendment such information as the Investor reasonably believes necessary to be included therein relating to the sale and distribution of Registrable Securities, including, without limitation, information with respect to the number of Registrable Securities being sold, the purchase price being paid therefor and any other terms of the offering of the Registrable Securities; (ii) make all required filings of such prospectus supplement or post-effective amendment as soon as practicable after being notified of the matters to be incorporated in such prospectus supplement or post-effective amendment; and (iii) supplement or make amendments to any registration statement.

(k) The Company shall use its reasonable best efforts to cause the Registrable Securities covered by any registration statement to be registered with or approved by such other governmental agencies or authorities as may be necessary to consummate the disposition of such Registrable Securities.

(l) Within three Trading Days after any registration statement which includes the Registrable Securities is declared effective by the Commission, the Company shall deliver, and shall cause legal counsel for the Company to deliver, to the transfer agent for such Registrable Securities (with copies to the Investor) confirmation that such registration statement has been

declared effective by the Commission in the form attached hereto as Exhibit A or such form agreed to by the Investor. Thereafter, if reasonably requested by the Purchaser at any time, the Company (acting directly or through its counsel) shall deliver to the Purchaser a written confirmation whether or not the effectiveness of such registration statement has lapsed at any time for any reason (including, without limitation, the issuance of a stop order by the Commission) and whether or not the registration statement is current and available to the Purchaser for sale of all of the Registrable Securities.

(m) The Company shall take all other reasonable actions necessary and reasonably requested in writing by the Investor to expedite and facilitate disposition by the Investor of Registrable Securities pursuant to any registration statement, including participating in customary due diligence sessions with underwriters of the Registrable Securities (in the case of an underwritten offering) and engaging counsel and independent auditors to provide customary legal opinions (including disclosure letters) and comfort letters, respectively.

(n) Notwithstanding anything to the contrary herein (but subject to the last sentence of this Section 3(n)), at any time after the Effective Date of a particular Registration Statement, the Company may delay the disclosure of material, non-public information concerning the Company or any of its Subsidiaries the disclosure of which at the time is not, in the good-faith opinion of the board of directors of the Company, in the best interest of the Company, nor, in the opinion of counsel to the Company, otherwise required (a "Grace Period"); *provided, however*, that the Company shall promptly, but in no event later than 9:30 a.m. (New York City time) on the second Trading Day immediately prior to the commencement of any Grace Period (except for such case where it is impracticable to provide such two-Trading Day advance notice, in which case the Company shall provide such notice as soon as possible), notify the Investor in writing of the (i) existence of material, non-public information giving rise to a Grace Period (provided that in each such notice the Company shall not disclose the content of such material, non-public information to the Investor) and the date on which such Grace Period will begin and (ii) date on which such Grace Period ends; *provided, further*, that (I) no Grace Period shall exceed 20 consecutive Trading Days, and during any 365-day period, all such Grace Periods shall not exceed an aggregate of 60 Trading Days; *provided, further*, that the Company shall not register any securities for the account of itself or any other shareholder during any such Grace Period (other than pursuant to a registration statement on Form S-4 or Form S-8, (II) the first day of any Grace Period must be at least three Trading Days (or such shorter period as may be agreed by the Parties) after the last day of any prior Grace Period and (III) no Grace Period may exist during (A) the first 10 consecutive Trading Days after the Effective Date of the particular Registration Statement or (B) the five-Trading Day period following each Settlement Date (each, an "Allowable Grace Period"). For purposes of determining the length of a Grace Period above, such Grace Period shall begin on and include the date set forth in the notice referred to in clause (i) above, provided that such notice is received by the Investor not later than 9:30 a.m. (New York City time) on the second Trading Day immediately prior to such commencement date (except for such case where it is impossible to provide such two-Trading Day advance notice, in which case the Company shall provide such notice as soon as possible) and shall end on and include the later of the date the Investor receives the notice referred to in clause (ii) above and the date referred to in such notice. The provisions of Section 3(j) hereof shall not be applicable during the period of any Allowable Grace Period. Upon expiration of each Grace Period, the Company shall again be bound by the first sentence of Section 3(e) with respect to the information giving rise thereto unless such

material, non-public information is no longer applicable. Notwithstanding anything to the contrary contained in this Section 3(n), the Company shall cause its transfer agent to deliver unlegended Shares to a transferee of the Investor in accordance with the terms of the Purchase Agreement in connection with any sale of Registrable Securities with respect to which the Investor has entered into a contract for sale, and delivered a copy of the prospectus included as part of the particular Registration Statement to the extent applicable, prior to the Investor's receipt of the notice of a Grace Period and for which the Investor has not yet settled.

4. Obligations of the Investor.

(a) At least five Business Days prior to the first anticipated filing date of each Registration Statement, the Company shall notify the Investor in writing of the information the Company reasonably requires from the Investor in connection with any registration statement hereunder. The Investor shall furnish to the Company such information regarding itself, the Registrable Securities held by it and the intended method of disposition of the Registrable Securities held by it as shall be reasonably required to effect the registration of such Registrable Securities and shall execute such documents in connection with such registration as the Company may reasonably request.

(b) The Investor agrees to cooperate with the Company as reasonably requested by the Company in connection with the preparation and filing of each Registration Statement hereunder, unless the Investor has notified the Company in writing of the Investor's election to exclude all of the Investor's Registrable Securities from such Registration Statement.

(c) The Investor agrees that, upon receipt of any notice from the Company of the happening of any event or existence of facts of the kind described in Section 3(f) or the first sentence of Section 3(e), the Investor will immediately discontinue disposition of Registrable Securities pursuant to any registration statement(s) covering such Registrable Securities until the Investor's receipt of the copies of the supplemented or amended prospectus contemplated by Section 3(f) or the first sentence of Section 3(e). Notwithstanding anything to the contrary, the Company shall cause its transfer agent to promptly deliver Shares without any restrictive legend in accordance with the terms of the Purchase Agreement in connection with any sale of Registrable Securities with respect to which an Investor has entered into a contract for sale prior to the Investor's receipt of a notice from the Company of the happening of any event of the kind described in Section 3(f) or the first sentence of Section 3(e) and for which the Investor has not yet settled.

5. Expenses and Fees.

(a) All reasonable expenses, other than sales or brokerage commissions, incurred in connection with registrations, filings or qualifications pursuant to Sections 2 and 3, including, without limitation, all registration, listing and qualifications fees, printers and accounting fees, FINRA filing fees (if any) and fees and disbursements of counsel for the Company shall be paid by the Company.

(b) The Company shall pay the reasonable and documented fees and expenses of Legal Counsel in connection with the review and overseeing the Registration Statement and all

New Registration Statements on Investors' behalf, not to exceed $15,000 in the aggregate.

6. Indemnification.

(a) To the fullest extent permitted by law, the Company will, and hereby does, indemnify, hold harmless and defend the Investor, each Person, if any, who controls the Investor, the members, directors, officers, shareholders, partners, employees, agents, advisors, representatives of the Investor and each Person, if any, who controls the Investor within the meaning of the Securities Act or the Securities Exchange Act of 1934, as amended (the "Exchange Act") (each, an "Indemnified Person"), against any losses, claims, damages, liabilities, judgments, fines, penalties, charges, costs (including, without limitation, court costs, reasonable attorneys' fees, costs of defense and investigation), attorneys' fees, amounts paid in settlement or expenses, joint or several (collectively, "Claims"), incurred in investigating, preparing or defending any action, claim, suit, inquiry, proceeding, investigation or appeal taken from the foregoing by or before any court or governmental, administrative or other regulatory agency, body or the Commission, whether pending or threatened, whether or not an indemnified party is or may be a party thereto, whether or not arising from a claim by a third party ("Indemnified Damages"), to which any of them may become subject insofar as such Claims (or actions or proceedings, whether commenced or threatened, in respect thereof) arise out of or are based upon: (i) any untrue statement or alleged untrue statement of a material fact in the Registration Statement, any New Registration Statement or any post-effective amendment thereto or in any filing made in connection with the qualification of the offering under the securities or other "blue sky" laws of any jurisdiction in which Registrable Securities are offered, or the omission or alleged omission to state a material fact required to be stated therein or necessary to make the statements therein not misleading, (ii) any untrue statement or alleged untrue statement of a material fact contained in the any prospectus (as amended or supplemented, if the Company files any amendment thereof or supplement thereto with the Commission) or in any prospectus supplement or the omission or alleged omission to state therein any material fact necessary to make the statements made therein, in light of the circumstances under which the statements therein were made, not misleading, (iii) any violation or alleged violation by the Company of the Securities Act, the Exchange Act, any other law, including, without limitation, any state securities law, or any rule or regulation thereunder relating to the offer or sale of the Registrable Securities pursuant to the Registration Statement or any New Registration Statement or (iv) any material violation by the Company of this Agreement (the matters in the foregoing clauses (i) through (iv) being, collectively, "Violations"). The Company shall reimburse each Indemnified Person promptly as such expenses are incurred and are due and payable, for any reasonable and documented legal fees or other reasonable expenses incurred by them in connection with investigating or defending any such Claim. Notwithstanding anything to the contrary contained herein, the indemnification agreement contained in this Section (a): (i) shall not apply to a Claim by an Indemnified Person arising out of or based upon a Violation which occurs in reliance upon and in conformity with information about the Investor furnished in writing to the Company by such Indemnified Person expressly for use in connection with the preparation of the Registration Statement, any New Registration Statement or any such amendment thereof or supplement thereto, if such prospectus was timely made available by the Company pursuant to Section 3(c) or Section 3(e); (ii) with respect to any superseded prospectus, shall not inure to the benefit of any such person from whom the person asserting any such Claim purchased the Registrable Securities that are the subject thereof (or to the benefit of any person controlling such person) if the untrue statement or omission of material

fact contained in the superseded prospectus was corrected in the revised prospectus, as then amended or supplemented, if such revised prospectus was timely made available by the Company pursuant to Section 3(c) or Section 3(e), and the Indemnified Person was promptly advised in writing not to use the incorrect prospectus prior to the use giving rise to a violation and such Indemnified Person, notwithstanding such advice, used it; (iii) shall not be available to the extent such Claim is based on a failure of the Investor to deliver or to cause to be delivered the prospectus made available by the Company, if such prospectus was timely made available by the Company pursuant to Section 3(c) or Section 3(e); and (iv) shall not apply to amounts paid in settlement of any Claim if such settlement is effected without the prior written consent of the Company, which consent shall not be unreasonably withheld. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of the Indemnified Person and shall survive the transfer of the Registrable Securities by the Investor pursuant to Section 9.

(b) In connection with the Registration Statement or any New Registration Statement, the Investor agrees to severally and not jointly indemnify, hold harmless and defend, to the same extent and in the same manner as is set forth in Section 6(a), the Company, each of its directors, each of its officers who signs the Registration Statement or any New Registration Statement, each Person, if any, who controls the Company within the meaning of the Securities Act or the Exchange Act (collectively and together with an Indemnified Person, an "Indemnified Party"), against any Claim or Indemnified Damages to which any of them may become subject, under the Securities Act, the Exchange Act or otherwise, insofar as such Claim or Indemnified Damages arise out of or are based upon any Violation, in each case to the extent, and only to the extent, that such Violation occurs in reliance upon and in conformity with written information about the Investor furnished to the Company by the Investor expressly for use in connection with such registration statement; and, subject to Section 6(d), the Investor will reimburse any legal or other expenses reasonably incurred by them in connection with investigating or defending any such Claim; provided, however, that the indemnity agreement contained in this Section 6(b) and the agreement with respect to contribution contained in Section 7 shall not apply to amounts paid in settlement of any Claim if such settlement is effected without the prior written consent of the Investor, which consent shall not be unreasonably withheld, delayed or conditioned; provided, further, however, that the Investor shall be liable under this Section 6(b) for only that amount of a Claim or Indemnified Damages as does not exceed the net proceeds to the Investor as a result of the sale of Registrable Securities pursuant to such registration statement. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of such Indemnified Party and shall survive the transfer of the Registrable Securities by the Investor pursuant to Section 9.

(c) Promptly after receipt by an Indemnified Person or Indemnified Party under this Section 6 of notice of the commencement of any action or proceeding (including any governmental action or proceeding) involving a Claim, such Indemnified Person or Indemnified Party shall, if a Claim in respect thereof is to be made against any indemnifying party under this Section 6 deliver to the indemnifying party a written notice of the commencement thereof, and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly noticed, to assume control of the defense thereof with counsel mutually satisfactory to the indemnifying party and the Indemnified Person or the Indemnified Party, as the case may be; *provided, however*, that an Indemnified Person or Indemnified Party shall have the right to retain its own counsel with the fees and

expenses to be paid by the indemnifying party, if, in the reasonable opinion of counsel retained by the indemnifying party, the representation by such counsel of the Indemnified Person or Indemnified Party and the indemnifying party would be inappropriate due to actual or potential differing interests between such Indemnified Person or Indemnified Party and any other party represented by such counsel in such proceeding, *provided* that there may be no more than one such separate counsel for all of the Indemnified Parties. The Indemnified Party or Indemnified Person shall cooperate fully with the indemnifying party in connection with any negotiation or defense of any such action or claim by the indemnifying party and shall furnish to the indemnifying party all information reasonably available to the Indemnified Party or Indemnified Person which relates to such action or claim. The indemnifying party shall keep the Indemnified Party or Indemnified Person fully apprised at all times as to the status of the defense or any settlement negotiations with respect thereto. No indemnifying party shall be liable for any settlement of any action, claim or proceeding effected without its written consent, provided, however, that the indemnifying party shall not unreasonably withhold, delay or condition its consent. No indemnifying party shall, without the consent of the Indemnified Party or Indemnified Person, consent to entry of any judgment or enter into any settlement or other compromise which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party or Indemnified Person of a release from all liability in respect to such claim or litigation. Following indemnification as provided for hereunder, the indemnifying party shall be subrogated to all rights of the Indemnified Party or Indemnified Person with respect to all third parties, firms or corporations relating to the matter for which indemnification has been made. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action shall not relieve such indemnifying party of any liability to the Indemnified Person or Indemnified Party under this Section 6, except to the extent that the indemnifying party is prejudiced in its ability to defend such action.

(d) The indemnification required by this Section 6 shall be made by periodic payments of the amount thereof during the course of the investigation or defense, as and when bills are received or Indemnified Damages are incurred.

(e) The indemnity agreements contained herein shall be in addition to (i) any cause of action or similar right of the Indemnified Party or Indemnified Person against the indemnifying party or others, and (ii) any liabilities the indemnifying party may be subject to pursuant to the law.

7. **Contribution.** To the extent any indemnification by an indemnifying party is prohibited or limited by law, the indemnifying party agrees to make the maximum contribution with respect to any amounts for which it would otherwise be liable under Section 6 to the fullest extent permitted by law; provided, however, that: (i) no seller of Registrable Securities guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any seller of Registrable Securities who was not guilty of fraudulent misrepresentation; and (ii) contribution by any seller of Registrable Securities shall be limited in amount to the net amount of proceeds received by such seller from the sale of such Registrable Securities.

8. Reports and Disclosures under the Securities Acts.

With a view to making available to the Investor the benefits of Rule 144, the Company agrees, on and after the Public Company Date, at the Company's sole expense, to:

(a) make and keep public information available, as those terms are understood and defined in Rule 144;

(b) file with the Commission in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act so long as the Company remains subject to such requirements and the filing of such reports and other documents is required for the applicable provisions of Rule 144;

(c) furnish to the Investor so long as the Investor owns Registrable Securities, promptly upon request, (i) a written statement by the Company that it has complied with the reporting and disclosure provisions of Rule 144, the Securities Act and the Exchange Act, (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company, and (iii) such other information as may be reasonably requested to permit the Investor to sell such securities pursuant to Rule 144 without registration (for the avoidance of doubt, any filing available to the Investor via the Commission's live EDGAR system shall be deemed "furnished to the Investor" hereunder); and

(d) take such additional action as is requested by the Investor to enable the Investor to sell the Registrable Securities pursuant to Rule 144, including, without limitation, delivering all such legal opinions, consents, certificates, resolutions and instructions to the Company's transfer agent as may be requested from time to time by the Investor and otherwise reasonably cooperate with Investor and Investor's broker to effect such sale of securities pursuant to Rule 144.

The Company agrees that damages may be an inadequate remedy for any breach of the terms and provisions of this Section 8 and that Investor shall, whether or not it is pursuing any remedies at law, be entitled to equitable relief in the form of a preliminary or permanent injunction, without having to post any bond or other security, upon any breach or threatened breach of any such terms or provisions. Investor agrees that the Rule 144 rights under this Agreement are subject to the delivery by the Investor of a bona fide fair market offer for a licensing or funding opportunity pursuant to the Purchase Agreement.

9. Assignment of Registration Rights. None of the Parties may assign this Agreement to any Person without the prior consent of the others; *provided that* without the consent of the other, (i) the Company may assign its rights and obligations under this Agreement to the Successor Company; (ii) the Purchaser may assign its rights and obligations under this agreement to an Affiliate of the Purchaser. In the event of a Reverse Merger Transaction, this Agreement shall be automatically assigned to the Successor Company, and the Parties agree that the terms of this Agreement shall be construed to give effect to such assignment.

10. Amendment of Registration Rights. Provisions of this Agreement may be amended and the observance thereof may be waived (either generally or in a particular instance and either retroactively or prospectively), only with the mutual written consent of the Company

and the Investor. Failure of any Party to exercise any right or remedy under this Agreement or otherwise, or delay by a Party in exercising such right or remedy, shall not operate as a waiver thereof.

11. Miscellaneous.

(a) A Person is deemed to be a holder of Registrable Securities whenever such Person owns or is deemed to own of record such Registrable Securities. If the Company receives conflicting instructions, notices or elections from two or more Persons with respect to the same Registrable Securities, the Company shall act upon the basis of instructions, notice or election received from the registered owner of such Registrable Securities.

(b) Any notices, consents, waivers or other communications required or permitted to be given under the terms of this Agreement must be in writing and will be deemed to have been delivered upon receipt, when delivered by electronic mail, return receipt requested, properly addressed to the Party to receive the same. The addresses for such communications shall be:

If to the Company:	FIBROBIOLOGICS LLC Attn: Pete O'Heeron Email: pete.oheeron@fibrobiologics.com
If to GYBL:	GEM Yield Bahamas Ltd. Attn: Cristopher F. Brown, Director Email: cbrown@gemny.com
With a copy (which shall not constitute notice):	Gibson, Dunn & Crutcher LLP Attn: Boris Dolgonos Email: bdolgonos@gibsondunn.com
If to the Purchaser:	GEM Global Yield LLC SCS Attn: Christopher F. Brown, Manager Email: cbrown@gemny.com
With a copy (which shall not constitute notice):	Gibson, Dunn & Crutcher LLP Attn: Boris Dolgonos Email: bdolgonos@gibsondunn.com

or at such other address and/or email address and/or to the attention of such other person as the recipient Party has specified by written notice given to each other Party three (3) Trading Days prior to the effectiveness of such change. Written confirmation of receipt (A) given by the recipient of such notice, consent, waiver or other communication, or (B) mechanically or electronically generated by the sender's computer or email service containing the time, date, recipient email address and text of such transmission shall be rebuttable evidence of personal service or receipt.

(c) Failure of any Party to exercise any right or remedy under this Agreement or otherwise, or delay by a Party in exercising such right or remedy, shall not operate as a waiver thereof.

(d) This Agreement shall be governed by the internal laws of the State of New York, without giving effect to the choice of law provisions except Section 5-1401 of the New York General Obligations Law. **EACH PARTY HEREBY IRREVOCABLY WAIVES ANY RIGHT IT MAY HAVE, AND AGREES NOT TO REQUEST, A JURY TRIAL FOR THE ADJUDICATION OF ANY DISPUTE HEREUNDER OR IN CONNECTION HEREWITH OR ARISING OUT OF THIS AGREEMENT OR ANY TRANSACTION CONTEMPLATED HEREBY.**

(e) All disputes, controversies or claims between the Parties arising out of or in connection with this Agreement (including its existence, validity or termination) which cannot be amicably resolved shall be finally resolved and settled under the Rules of Arbitration of the American Arbitration Association and its affiliate the International Center for Dispute Resolution in New York City. The arbitration tribunal shall be composed of one arbitrator. The arbitration will take place in New York City, New York, and shall be conducted in the English language. The arbitration award shall be final and binding on the Parties.

(f) This Agreement, the Purchase Agreement, and the Warrant constitute the entire agreement among the Parties hereto with respect to the subject matter hereof and thereof. There are no restrictions, promises, warranties or undertakings among the parties hereto, other than those set forth or referred to herein and therein. This Agreement , the Purchase Agreement, and the Warrant supersede all prior agreements and understandings among the Parties hereto with respect to the subject matter hereof and thereof.

(g) Subject to the requirements of Section 9, this Agreement shall inure to the benefit of and be binding upon the permitted successors and assigns of each of the Parties hereto.

(h) The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

(i) This Agreement may be executed in identical counterparts, each of which shall be deemed an original but all of which shall constitute one and the same agreement. This Agreement, once executed by a Party, may be delivered to the other Party hereto by email in a "pdf" format data file of a copy of this Agreement bearing the signature of the Party so delivering this Agreement.

(j) Each Party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all such other agreements, certificates, instruments and documents, as the other Party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

(k) The language used in this Agreement will be deemed to be the language chosen by the Parties to express their mutual intent, and no rules of strict construction will be

applied against any Party.

[*Remainder of Page Intentionally Left Blank; Signature Page Follows*]

IN WITNESS WHEREOF, the Parties have caused this Registration Rights Agreement to be duly executed as of day and year first above written.

THE COMPANY:

FIBROBIOLOGICS LLC

By:_____
Name: PETE OHEERON
Title: MGR.

PURCHASER:

GEM GLOBAL YIELD LLC SCS

By:_____
Name: Christopher F. Brown
Title: Manager

GEM YIELD BAHAMAS LIMITED

By:_____
Name: Christopher F. Brown
Title: Director

EXHIBIT A

FORM OF NOTICE OF EFFECTIVENESS OF REGISTRATION STATEMENT

[TRANSFER AGENT]
Attn:

Re: FIBROBIOLOGICS LLC

Ladies and Gentlemen:

We are counsel to FIBROBIOLOGICS LLC, a Delaware limited liability company (the "Company"), and have represented the Company in connection with that certain private placement of shares (the "Offering"), pursuant to which the Company issued to GEM GLOBAL YIELD LLC SCS, a "société en commandite simple" formed under the laws of Luxembourg (the "Investor") _____ common shares (the "Shares").

Pursuant to the Offering, the Company also has entered into a Registration Rights Agreement with the Investor (the "Registration Rights Agreement") pursuant to which the Company agreed, among other things, to register the Registrable Securities (as defined in the Registration Rights Agreement) under the Securities Act of 1933, as amended (the "Securities Act"). In connection with the Company's obligations under the Registration Rights Agreement, on _____, the Company filed a Registration Statement on Form _____ (File No. 333-_____) (the "Registration Statement") with the United States Securities and Exchange Commission (the "Commission") relating to the Registrable Securities which names the Investor as a selling shareholder thereunder.

In connection with the foregoing, we advise you that a member of the Commission's staff has advised us by _____ that the Commission has entered an order declaring the Registration Statement effective under the Securities Act at [ENTER TIME OF EFFECTIVENESS] on [ENTER DATE OF EFFECTIVENESS], and we have no knowledge that any stop order suspending its effectiveness has been issued or that any proceedings for that purpose are pending before, or threatened by, the Commission. Thus, the Registrable Securities are available for resale under the Securities Act pursuant to the Registration Statement.

Very truly yours,

_____

By:
Name:
Title:

cc: Investor

Exhibit 10.12

FIBROBIOLOGICS, INC.

2022 STOCK PLAN

ADOPTED BY THE BOARD OF DIRECTORS: AUGUST 10, 2022
APPROVED BY THE STOCKHOLDERS: AUGUST 18, 2022

1. General.

(a) Eligible Stock Award Recipients. Employees are eligible to receive Stock Awards, and Directors and Consultants are eligible to receive Stock Awards other than Incentive Stock Options.

(b) Available Stock Awards. The Plan provides for the grant of the following types of Stock Awards: (i) Incentive Stock Options, (ii) Nonstatutory Stock Options, (iii) Stock Appreciation Rights, (iv) Restricted Stock Awards, (v) Restricted Stock Unit Awards and (vi) Other Stock Awards.

(c) Purpose. The Plan, through the grant of Stock Awards, is intended to help the Company secure and retain the services of eligible award recipients, provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate and provide a means by which the eligible recipients may benefit from increases in value of the Common Stock.

2. Administration.

(a) Administration by the Board. The Board will administer the Plan. The Board may delegate administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) Powers of the Board. The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine (A) who will be granted Stock Awards; (B) when and how each Stock Award will be granted; (C) what type of Stock Award will be granted; (D) the provisions of each Stock Award (which need not be identical), including when a person will be permitted to exercise or otherwise receive cash or Common Stock under the Stock Award; (E) the number of shares of Common Stock subject to, or the cash value of, a Stock Award; and (F) the Fair Market Value applicable to a Stock Award.

(ii) To construe and interpret the Plan and Stock Awards granted under it, and to establish, amend and revoke rules and regulations for administration of the Plan and Stock Awards. The Board, in the exercise of these powers, may correct any defect, omission or inconsistency in the Plan or in any Stock Award Agreement, in a manner and to the extent it will deem necessary or expedient to make the Plan or Stock Award fully effective.

(iii) To settle all controversies regarding the Plan and Stock Awards granted under it.

(iv) To accelerate, in whole or in part, the time at which a Stock Award may be exercised or vest (or the time at which cash or shares of Common Stock may be issued in settlement thereof).

(v) To suspend or terminate the Plan at any time. Except as otherwise provided in the Plan or a Stock Award Agreement, suspension or termination of the Plan will not impair a Participant's rights under the Participant's then-outstanding Stock Award without the Participant's written consent except as provided in subsection (viii) below.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, by adopting amendments relating to Incentive Stock Options and to Stock Awards that are nonqualified deferred compensation under Section 409A of the Code and/or bringing the Plan or Stock Awards granted under the Plan into compliance with the requirements for Incentive Stock Options or ensuring that they are exempt from, or compliant with, the requirements for nonqualified deferred compensation under Section 409A of the Code, subject to the limitations, if any, of applicable law. If required by applicable law or listing requirements, and except as provided in Section 9(a) relating to Capitalization Adjustments, the Company will seek stockholder approval of any amendment of the Plan that (A) materially increases the number of shares of Common Stock available for issuance under the Plan, (B) materially expands the class of individuals eligible to receive Stock Awards under the Plan, (C) materially increases the benefits accruing to Participants under the Plan, (D) materially reduces the price at which shares of Common Stock may be issued or purchased under the Plan, (E) materially extends the term of the Plan, or (F) materially expands the types of Stock Awards available for issuance under the Plan.

(vii) To submit any amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of Section 422 of the Code regarding Incentive Stock Options.

(viii) To approve forms of Stock Award Agreements for use under the Plan and to amend the terms of any one or more Stock Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Stock Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided however,* that a Participant's rights under any Stock Award will not be impaired by any such amendment unless (A) the Company requests the consent of the affected Participant, and (B) such Participant consents in writing. Notwithstanding the foregoing, (1) a Participant's rights will not be deemed to have been impaired by any such amendment if the Board, in its sole discretion, determines that the amendment, taken as a whole, does not materially impair the Participant's rights, and (2) subject to the limitations of applicable law, if any, the Board may amend the terms of any one or more Stock Awards without the affected Participant's consent (A) to maintain the qualified status of the Stock Award as an Incentive Stock Option under Section 422 of the Code; (B) to change the terms of an Incentive Stock Option, if such change results in impairment of the Stock Award solely because it impairs the qualified status of the Stock Award as an Incentive Stock Option under Section 422 of the Code; (C) to clarify the manner of exemption from, or to bring the Stock Award into compliance with, Section 409A of the Code; or (D) to comply with other applicable laws.

(ix) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Stock Awards.

(x) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees, Directors or Consultants who are foreign nationals or employed outside the United States (provided that Board approval will not be necessary for immaterial modifications to the Plan or any Stock Award Agreement that are required for compliance with the laws of the relevant foreign jurisdiction).

(xi) To effect (A) the reduction of the exercise, purchase or strike price of any outstanding Stock Award; (B) the cancellation of any outstanding Stock Award and the grant in substitution therefor of a new (1) Option or SAR, (2) Restricted Stock Award, (3) Restricted Stock Unit Award, (4) Other Stock Award, (5) cash and/or (6) other valuable consideration determined by the Board, in its sole discretion, with any such substituted award (x) covering the same or a different number of shares of Common Stock as the cancelled Stock Award and (y) granted under the Plan or another equity or compensatory plan of the Company; or (C) any other action that is treated as a repricing under generally accepted accounting principles.

(c) Delegation to Committee. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board will thereafter be to the Committee or subcommittee, as applicable). Any delegation of administrative powers will be reflected in resolutions, not inconsistent with the provisions of the Plan, adopted from time to time by the Board or Committee (as applicable). The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated.

(d) Delegation to an Officer. The Board may delegate to one or more Officers the authority to do one or both of the following: (i) designate Employees who are not Officers to be recipients of Options and SARs (and, to the extent permitted by applicable law, other Stock Awards) and, to the extent permitted by applicable law, the terms of such Stock Awards, and (ii) determine the number of shares of Common Stock to be subject to such Stock Awards granted to such Employees; *provided, however*, that the Board resolutions regarding such delegation will specify the total number of shares of Common Stock that may be subject to the Stock Awards granted by such Officer and that such Officer may not grant a Stock Award to himself or herself. Any such Stock Awards will be granted on the form of Stock Award Agreement most recently approved for use by the Committee or the Board, unless otherwise provided in the resolutions approving the delegation authority. The Board may not delegate authority to an Officer who is acting solely in the capacity of an Officer (and not also as a Director) to determine the Fair Market Value pursuant to Section 13(t) below.

(e) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

3. Shares Subject to the Plan.

(a) Share Reserve.

(i) Subject to Section 9(a) relating to Capitalization Adjustments, the aggregate number of shares of Common Stock that may be issued pursuant to Stock Awards from and after the Effective Date will not exceed **50,000,000** shares (the ***"Share Reserve"***).

(ii) For clarity, the Share Reserve in this Section 3(a) is a limitation on the number of shares of Common Stock that may be issued pursuant to the Plan. Accordingly, this Section 3(a) does not limit the granting of Stock Awards.

(b) Reversion of Shares to the Share Reserve. If a Stock Award or any portion thereof (i) expires or otherwise terminates without all of the shares covered by such Stock Award having been issued or (ii) is settled in cash (*i.e.*, the Participant receives cash rather than stock), such expiration, termination or settlement will not reduce (or otherwise offset) the number of shares of Common Stock that may be available for issuance under the Plan. If any shares of Common Stock issued pursuant to a Stock Award are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required to vest such shares in the Participant, then the shares that are forfeited or repurchased will revert to and again become available for issuance under the Plan. Any shares reacquired by the Company in satisfaction of tax withholding obligations on a Stock Award or as consideration for the exercise or purchase price of a Stock Award will again become available for issuance under the Plan.

(c) Incentive Stock Option Limit. Subject to the Share Reserve and Section 9(a) relating to Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options will be a number of shares of Common Stock equal to the number of shares of Common Stock constituting the Share Reserve on the Effective Date.

(d) Source of Shares. The stock issuable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

4. Eligibility.

(a) Eligibility for Specific Stock Awards. Incentive Stock Options may be granted only to employees of the Company or a "parent corporation" or "subsidiary corporation" thereof (as such terms are defined in Sections 424(e) and 424(f) of the Code). Stock Awards other than Incentive Stock Options may be granted to Employees, Directors and Consultants; *provided, however*, that Stock Awards may not be granted to Employees, Directors and Consultants who are providing Continuous Service only to any "parent" of the Company, as such term is defined in Rule 405, unless (i) the stock underlying such Stock Awards is treated as "service recipient stock" under Section 409A of the Code (for example, because the Stock Awards are granted pursuant to a corporate transaction such as a spin off transaction), (ii) the Company, in consultation with its legal counsel, has determined that such Stock Awards are otherwise exempt from Section 409A of the Code, or (iii) the Company, in consultation with its legal counsel, has determined that such Stock Awards comply with the distribution requirements of Section 409A of the Code.

(b) Ten Percent Stockholders. A Ten Percent Stockholder will not be granted an Incentive Stock Option unless the exercise price of such Option is at least 110% of the Fair Market Value on the date of grant and the Option is not exercisable after the expiration of five years from the date of grant.

(c) Consultants. A Consultant will not be eligible for the grant of a Stock Award if, at the time of grant, either the offer or sale of the Company's securities to such Consultant is not exempt under Rule 701 because of the nature of the services that the Consultant is providing to the Company, because the Consultant is not a natural person, or because of any other provision of Rule 701, unless the Company determines that such grant need not comply with the requirements of Rule 701 and will satisfy another exemption under the Securities Act as well as comply with the securities laws of all other relevant jurisdictions.

5. Provisions Relating to Options and Stock Appreciation Rights.

Each Option or SAR will be in such form and will contain such terms and conditions as the Board deems appropriate. All Options will be separately designated Incentive Stock Options or Nonstatutory Stock Options at the time of grant, and, if certificates are issued, a separate certificate or certificates will be issued for shares of Common Stock purchased on exercise of each type of Option. If an Option is not specifically designated as an Incentive Stock Option, or if an Option is designated as an Incentive Stock Option but some portion or all of the Option fails to qualify as an Incentive Stock Option under the applicable rules, then the Option (or portion thereof) will be a Nonstatutory Stock Option. The provisions of separate Options or SARs need not be identical; *provided, however*, that each Stock Award Agreement will conform to (through incorporation of provisions hereof by reference in the applicable Stock Award Agreement or otherwise) the substance of each of the following provisions:

(a) Term. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, no Option or SAR will be exercisable after the expiration of 10 years from the date of its grant or such shorter period specified in the Stock Award Agreement.

(b) Exercise Price. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, the exercise or strike price of each Option or SAR will be not less than 100% of the Fair Market Value of a share of the Common Stock on the date the Stock Award is granted. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise or strike price lower than 100% of the Fair Market Value of the Common Stock subject to the Stock Award if such Stock Award is granted pursuant to an assumption of or substitution for another option or stock appreciation right pursuant to a Corporate Transaction and in a manner consistent with the provisions of Section 409A of the Code and, if applicable, Section 424(a) of the Code. Each SAR will be denominated in shares of Common Stock equivalents.

(c) Purchase Price for Options. The purchase price of Common Stock acquired pursuant to the exercise of an Option may be paid, to the extent permitted by applicable law and as determined by the Board in its sole discretion, by any combination of the methods of payment set forth below. The Board will have the authority to grant Options that do not permit all of the following methods of payment (or otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to use a particular method of payment. The permitted methods of payment are as follows:

(i) by cash, check, ACH payment, bank draft or money order payable to the Company;

(ii) pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds;

(iii) by delivery to the Company (either by actual delivery or attestation) of shares of Common Stock;

(iv) if an Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided, however*, that the Company will accept a cash or other payment from the Participant to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued. Shares of Common Stock will no longer be subject to an Option and will not be exercisable thereafter to the extent that (A) shares issuable upon exercise are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations;

(v) according to a deferred payment or similar arrangement with the Optionholder; *provided, however*, that interest will compound at least annually and will be charged at the minimum rate of interest necessary to avoid (A) the imputation of interest income to the Company and compensation income to the Optionholder under any applicable provisions of the Code, and (B) the classification of the Option as a liability for financial accounting purposes; or

(vi) in any other form of legal consideration that may be acceptable to the Board and specified in the applicable Stock Award Agreement.

(d) Exercise and Payment of a SAR. To exercise any outstanding SAR, the Participant must provide written notice of exercise to the Company in compliance with the provisions of the Stock Appreciation Right Agreement evidencing such SAR. The appreciation distribution payable on the exercise of a SAR will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the SAR) of a number of shares of Common Stock equal to the number of Common Stock equivalents in which the Participant is vested under such SAR, and with respect to which the Participant is exercising the SAR on such date, over (B) the aggregate strike price of the number of Common Stock equivalents with respect to which the Participant is exercising the SAR on such date. The appreciation distribution may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Stock Award Agreement evidencing such SAR.

(e) Transferability of Options and SARs. The Board may, in its sole discretion, impose such limitations on the transferability of Options and SARs as the Board will determine. In the absence of such a determination by the Board to the contrary, the following restrictions on the transferability of Options and SARs will apply:

(i) Restrictions on Transfer. An Option or SAR will not be transferable except by will or by the laws of descent and distribution (or pursuant to subsections (ii) and (iii) below), and will be exercisable during the lifetime of the Participant only by the Participant. The Board may permit transfer of the Option or SAR in a manner that is not prohibited by applicable tax and securities laws. Except as explicitly provided in the Plan, neither an Option nor a SAR may be transferred for consideration.

(ii) Beneficiary Designation. Subject to the approval of the Board or a duly authorized Officer, a Participant may, by delivering written notice to the Company, in a form approved by the Company (or the designated broker), designate a third party who, upon the death of the Participant, will thereafter be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, upon the death of the Participant, the executor or administrator of the Participant's estate will be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. However, the Company may prohibit designation of a beneficiary at any time, including due to any conclusion by the Company that such designation would be inconsistent with the provisions of applicable laws.

(f) Vesting Generally. The total number of shares of Common Stock subject to an Option or SAR may vest and therefore become exercisable in periodic installments that may or may not be equal. The Option or SAR may be subject to such other terms and conditions on the time or times when it may or may not be exercised (which may be based on the satisfaction of performance goals or other criteria) as the Board may deem appropriate. The vesting provisions of individual Options or SARs may vary. The provisions of this Section 5(f) are subject to any Option or SAR provisions governing the minimum number of shares of Common Stock as to which an Option or SAR may be exercised.

(g) Termination of Continuous Service. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, if a Participant's Continuous Service terminates (other than for Cause and other than upon the Participant's death or Disability), the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Stock Award as of the date of termination of Continuous Service) within the period of time ending on the earlier of (i) the date three months following the termination of the Participant's Continuous Service (or such longer or shorter period specified in the applicable Stock Award Agreement, which period will not be less than 30 days if necessary to comply with applicable laws unless such termination is for Cause) and (ii) the expiration of the term of the Option or SAR as set forth in the Stock Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time frame, the Option or SAR will terminate.

(h) Extension of Termination Date. If the exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause and other than upon the Participant's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option or SAR will terminate on the earlier of (i) the expiration of a total period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements, and (ii) the expiration of the term of the Option or SAR as set forth in the applicable Stock Award Agreement. In addition, unless otherwise provided in a Participant's Stock Award Agreement, if the sale of any Common Stock received upon exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause) would violate the Company's insider trading policy, then the Option or SAR will terminate on the earlier of (i) the expiration of the period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the sale of the Common Stock received upon exercise of the Option or SAR would not be in violation of the Company's insider trading policy, and (ii) the expiration of the term of the Option or SAR as set forth in the applicable Stock Award Agreement.

(i) Disability of Participant. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, if a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date 12 months following such termination of Continuous Service (or such longer or shorter period specified in the Stock Award Agreement, which period will not be less than six months if necessary to comply with applicable laws unless such termination is for Cause), and (ii) the expiration of the term of the Option or SAR as set forth in the Stock Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR within the applicable time frame, the Option or SAR (as applicable) will terminate.

(j) Death of Participant. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, if (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) the Participant dies within the period (if any) specified in the Stock Award Agreement for exercisability after the termination of the Participant's Continuous Service (for a reason other than death), then the Option or SAR may be exercised (to the extent the Participant was entitled to exercise such Option or SAR as of the date of death) by the Participant's estate, by a person who acquired the right to exercise the Option or SAR by bequest or inheritance or by a person designated to exercise the Option or SAR upon the Participant's death, but only within the period ending on the earlier of (i) the date 18 months following the date of death (or such longer or shorter period specified in the Stock Award Agreement, which period will not be less than six months if necessary to comply with applicable laws unless such termination is for Cause), and (ii) the expiration of the term of such Option or SAR as set forth in the Stock Award Agreement. If, after the Participant's death, the Option or SAR is not exercised within the applicable time frame, the Option or SAR (as applicable) will terminate.

(k) Termination for Cause. Except as explicitly provided otherwise in a Participant's Stock Award Agreement or other individual written agreement between the Company or any Affiliate and the Participant, if a Participant's Continuous Service is terminated for Cause, the Option or SAR will terminate immediately upon such Participant's termination of Continuous Service, and the Participant will be prohibited from exercising his or her Option or SAR from and after the date of such termination of Continuous Service.

(l) Non-Exempt Employees. If an Option or SAR is granted to an Employee who is a non- exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, the Option or SAR will not be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Option or SAR (although the Stock Award may vest prior to such date). Consistent with the provisions of the Worker Economic Opportunity Act, (i) if such non-exempt Employee dies or suffers a Disability, (ii) upon a Corporate Transaction in which such Option or SAR is not assumed, continued, or substituted, (iii) upon a Change in Control, or (iv) upon the Participant's retirement (as such term may be defined in the Participant's Stock Award Agreement, in another agreement between the Participant and the Company, or, if no such definition, in accordance with the Company's then current employment policies and guidelines), the vested portion of any Options and SARs may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay. To the extent permitted and/or required for compliance with the Worker Economic Opportunity Act to ensure that any income derived by a non-exempt employee in connection with the exercise, vesting or issuance of any shares under any other Stock Award will be exempt from the employee's regular rate of pay, the provisions of this Section 5(l) will apply to all Stock Awards and are hereby incorporated by reference into such Stock Award Agreements.

(m) Early Exercise of Options. An Option may, but need not, include a provision whereby the Optionholder may elect at any time before the Optionholder's Continuous Service terminates to exercise the Option as to any part or all of the shares of Common Stock subject to the Option prior to the full vesting of the Option. Subject to the "Repurchase Limitation" in Section 8(l), any unvested shares of Common Stock so purchased may be subject to a repurchase right in favor of the Company or to any other restriction the Board determines to be appropriate. Provided that the "Repurchase Limitation" in Section 8(l) is not violated, the Company will not be required to exercise its repurchase right until at least six months (or such longer or shorter period of time required to avoid classification of the Option as a liability for financial accounting purposes) have elapsed following exercise of the Option unless the Board otherwise specifically provides in the Option Agreement.

(n) Right of Repurchase. Subject to the "Repurchase Limitation" in Section 8(l), the Option or SAR may include a provision whereby the Company may elect to repurchase all or any part of the vested shares of Common Stock acquired by the Participant pursuant to the exercise of the Option or SAR.

(o) Right of First Refusal. The Option or SAR may include a provision whereby the Company may elect to exercise a right of first refusal following receipt of notice from the Participant of the intent to transfer all or any part of the shares of Common Stock received upon the exercise of the Option or SAR. Such right of first refusal will be subject to the "Repurchase Limitation" in Section 8(l). Except as expressly provided in this Section 5(o) or in the Stock Award Agreement, such right of first refusal will otherwise comply with any applicable provisions of the bylaws of the Company.

6. Provisions of Stock Awards Other Than Options and SARs.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement will be in such form and will contain such terms and conditions as the Board will deem appropriate. To the extent consistent with the Company's bylaws, at the Board's election, shares of Common Stock underlying a Restricted Stock Award may be (i) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse; or (ii) evidenced by a certificate, which certificate will be held in such form and manner as determined by the Board. The terms and conditions of Restricted Stock Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Award Agreements need not be identical. Each Restricted Stock Award Agreement will conform to (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash, check, bank draft or money order payable to the Company, (B) past services to the Company or an Affiliate, or (C) any other form of legal consideration (including future services) that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Subject to the "Repurchase Limitation" in Section 8(l), shares of Common Stock awarded under the Restricted Stock Award Agreement may be subject to forfeiture to the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Participant's Continuous Service. If a Participant's Continuous Service terminates, the Company may receive through a forfeiture condition or a repurchase right, any or all of the shares of Common Stock held by the Participant that have not vested as of the date of termination of Continuous Service under the terms of the Restricted Stock Award Agreement.

(iv) Transferability. Rights to acquire shares of Common Stock under the Restricted Stock Award Agreement will be transferable by the Participant only upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board will determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement.

(v) Dividends. A Restricted Stock Award Agreement may provide that any dividends paid on Restricted Stock will be subject to the same vesting and forfeiture restrictions as apply to the shares subject to the Restricted Stock Award to which they relate.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement will be in such form and will contain such terms and conditions as the Board deem appropriate. The terms and conditions of Restricted Stock Unit Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical. Each Restricted Stock Unit Award Agreement will conform to (through incorporation of the provisions hereof by reference in the Agreement or otherwise) the substance of each of the following provisions:

(i) Vesting. At the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions on or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(ii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iii) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to a Restricted Stock Unit Award to a time after the vesting of such Restricted Stock Unit Award.

(iv) Dividend Equivalents. Dividend equivalents may be credited in respect of shares of Common Stock covered by a Restricted Stock Unit Award, as determined by the Board and contained in the Restricted Stock Unit Award Agreement. At the sole discretion of the Board, such dividend equivalents may be converted into additional shares of Common Stock covered by the Restricted Stock Unit Award in such manner as determined by the Board. Any additional shares covered by the Restricted Stock Unit Award credited by reason of such dividend equivalents will be subject to all of the same terms and conditions of the underlying Restricted Stock Unit Award Agreement to which they relate.

(v) Termination of Participant's Continuous Service. Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement, such portion of the Restricted Stock Unit Award that has not vested will be forfeited upon the Participant's termination of Continuous Service.

(vi) Compliance with Section 409A of the Code. Notwithstanding anything to the contrary set forth herein, any Restricted Stock Unit Award granted under the Plan that is not exempt from the requirements of Section 409A of the Code shall be interpreted so as to comply with the requirements of Section 409A of the Code. Such restrictions, if any, shall be determined by the Board and contained in the Restricted Stock Unit Award Agreement evidencing such Restricted Stock Unit Award. For example, such restrictions may include, without limitation, a requirement that any Common Stock that is to be issued in a year following the year in which the Restricted Stock Unit Award vests must be issued in accordance with a fixed pre-determined schedule.

(c) Other Stock Awards. Other forms of Stock Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof may be granted either alone or in addition to Stock Awards provided for under Section 5 and the preceding provisions of this Section 6. Subject to the provisions of the Plan, the Board will have sole and complete authority to determine the persons to whom and the time or times at which such Other Stock Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Stock Awards and all other terms and conditions of such Other Stock Awards.

7. Covenants of the Company.

(a) Securities Law Compliance. The Company may seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Stock Awards and to issue and sell shares of Common Stock upon exercise of the Stock Awards; *provided, however,* that this undertaking will not require the Company to register under the Securities Act the Plan, any Stock Award or any Common Stock issued or issuable pursuant to any such Stock Award. If, after reasonable efforts and at a reasonable cost, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company will be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Stock Awards unless and until such authority is obtained. A Participant will not be eligible for the grant of a Stock Award or the subsequent issuance of cash or Common Stock pursuant to the Stock Award if such grant or issuance would be in violation of any applicable securities law.

(b) No Obligation to Notify or Minimize Taxes. The Company will have no duty or obligation to any Participant to advise such holder as to the time or manner of exercising such Stock Award. Furthermore, the Company will have no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of a Stock Award or a possible period in which the Stock Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of a Stock Award to the holder of such Stock Award.

8. Miscellaneous.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock pursuant to Stock Awards will constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Stock Awards. Corporate action constituting a grant by the Company of a Stock Award to any Participant will be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Stock Award is communicated to, or actually received or accepted by, the Participant. In the event that the corporate records (e.g., Board consents, resolutions or minutes) documenting the corporate action constituting the grant contain terms (e.g., exercise price, vesting schedule or number of shares) that are inconsistent with those in the Stock Award Agreement or related grant documents as a result of a clerical error in the papering of the Stock Award Agreement or related grant documents, the corporate records will control and the Participant will have no legally binding right to the incorrect term in the Stock Award Agreement or related grant documents.

(c) Stockholder Rights. No Participant will be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to a Stock Award unless and until (i) such Participant has satisfied all requirements for exercise of, or the issuance of shares of Common Stock under, the Stock Award pursuant to its terms, and (ii) the issuance of the Common Stock subject to the Stock Award has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Stock Award Agreement or any other instrument executed thereunder or in connection with any Stock Award granted pursuant thereto will confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Stock Award was granted or will affect the right of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Change in Time Commitment. In the event a Participant's regular level of time commitment in the performance of his or her services for the Company and any Affiliates is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee or takes an extended leave of absence) after the date of grant of any Stock Award to the Participant, the Board has the right in its sole discretion to (x) make a corresponding reduction in the number of shares subject to any portion of such Stock Award that is scheduled to vest or become payable after the date of such change in time commitment, and (y) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Stock Award. In the event of any such reduction, the Participant will have no right with respect to any portion of the Stock Award that is so reduced or extended.

(f) Incentive Stock Option Limitations. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which incentive stock options within the meaning of Section 422 of the Code are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and any Affiliates) exceeds $100,000 (or such other limit established in the Code) or otherwise does not comply with the rules governing Incentive Stock Options, the Options or portions thereof that exceed such limit (according to the order in which they were granted) or otherwise do not comply with such rules will be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(g) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Stock Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that the Participant is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Stock Award; and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Stock Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, will be inoperative if (A) the issuance of the shares upon the exercise or acquisition of Common Stock under the Stock Award has been registered under a then currently effective registration statement under the Securities Act, or (B) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates or electronic book entries for Common Stock issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(h) Withholding Obligations. Unless prohibited by the terms of a Stock Award Agreement, the Company may, in its sole discretion, satisfy any federal, state or local tax withholding obligation relating to a Stock Award by any of the following means or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Stock Award; *provided, however*, that no shares of Common Stock are withheld with a value exceeding the minimum amount of tax required to be withheld by law (or such lesser amount as may be necessary to avoid classification of the Stock Award as a liability for financial accounting purposes); (iii) withholding cash from a Stock Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; or (v) by such other method as may be set forth in the Stock Award Agreement.

(i) Electronic Delivery. Any reference herein to a "written" agreement or document will include any agreement or document delivered electronically or posted on the Company's intranet (or other shared electronic medium controlled by the Company to which the Participant has access).

(j) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Stock Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in accordance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee or otherwise providing services to the Company. The Board is authorized to make deferrals of Stock Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of Continuous Service, and implement such other terms and conditions consistent with the provisions of the Plan and in accordance with applicable law.

(k) Compliance with Section 409A of the Code. To the extent that the Board determines that any Stock Award granted hereunder is subject to Section 409A of the Code, the Stock Award Agreement evidencing such Stock Award shall be interpreted and administered in accordance with that intent. To the extent applicable, the Plan and Stock Award Agreements shall be interpreted so as to comply with the requirements of Section 409A of the Code. Notwithstanding anything to the contrary in the Plan (and unless the Stock Award Agreement specifically provides otherwise), if the shares of Common Stock are publicly traded, and if a Participant holding a Stock Award that constitutes "deferred compensation" under Section 409A of the Code is a "specified employee" for purposes of Section 409A of the Code, no distribution or payment of any amount that is due because of a "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) will be issued or paid before the date that is six months following the date of such Participant's "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) or, if earlier, the date of the Participant's death, unless such distribution or payment can be made in a manner that complies with Section 409A of the Code, and any amounts so deferred will be paid in a lump sum on the day after such six month period elapses, with the balance paid thereafter on the original schedule.

(l) Repurchase Limitation. The terms of any repurchase right will be specified in the Stock Award Agreement. The repurchase price for vested shares of Common Stock will be the Fair Market Value of the shares of Common Stock on the date of repurchase. The repurchase price for unvested shares of Common Stock will be the lower of (i) the Fair Market Value of the shares of Common Stock on the date of repurchase or (ii) their original purchase price. However, the Company will not exercise its repurchase right until at least six months (or such longer or shorter period of time necessary to avoid classification of the Stock Award as a liability for financial accounting purposes) have elapsed following delivery of shares of Common Stock subject to the Stock Award, unless otherwise specifically provided by the Board.

9. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; OTHER CORPORATE EVENTS.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board may, as it determines, proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 3(c), and (iii) the class(es) and number of securities and price per share of stock subject to outstanding Stock Awards. The Board will make such adjustments, and its determination will be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the Stock Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Stock Awards (other than Stock Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) will terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company notwithstanding the fact that the holder of such Stock Award is providing Continuous Service, *provided, however,* that the Board may, in its sole discretion, cause some or all Stock Awards to become fully vested, exercisable and/or no longer subject to repurchase or forfeiture (to the extent such Stock Awards have not previously expired or terminated) before the dissolution or liquidation is completed but contingent on its completion.

(c) Corporate Transaction. The following provisions will apply to Stock Awards in the event of a Corporate Transaction unless otherwise provided in the instrument evidencing the Stock Award or any other written agreement between the Company or any Affiliate and the Participant or unless otherwise expressly provided by the Board at the time of grant of a Stock Award. In the event of a Corporate Transaction, then, notwithstanding any other provision of the Plan, the Board may take one or more of the following actions with respect to Stock Awards, contingent upon the closing or completion of the Corporate Transaction:

(i) arrange for the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) to assume or continue the Stock Award or to substitute a similar stock award for the Stock Award (including, but not limited to, an award to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction);

(ii) arrange for the assignment of any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to the Stock Award to the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company);

(iii) accelerate the vesting, in whole or in part, of the Stock Award (and, if applicable, the time at which the Stock Award may be exercised) to a date prior to the effective time of such Corporate Transaction as the Board determines (or, if the Board does not determine such a date, to the date that is five days prior to the effective date of the Corporate Transaction), with such Stock Award terminating if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction; *provided, however*, that the Board may require Participants to complete and deliver to the Company a notice of exercise before the effective date of a Corporate Transaction, which exercise is contingent upon the effectiveness of such Corporate Transaction;

(iv) arrange for the lapse, in whole or in part, of any reacquisition or repurchase rights held by the Company with respect to the Stock Award;

(v) cancel or arrange for the cancellation of the Stock Award, to the extent not vested or not exercised prior to the effective time of the Corporate Transaction, in exchange for such cash consideration (including no consideration) as the Board, in its sole discretion, may consider appropriate; and

(vi) make a payment, in such form as may be determined by the Board equal to the excess, if any, of (A) the value of the property the Participant would have received upon the exercise of the Stock Award immediately prior to the effective time of the Corporate Transaction, over (B) any exercise price payable by such holder in connection with such exercise. For clarity, this payment may be zero ($0) if the value of the property is equal to or less than the exercise price. Payments under this provision may be delayed to the same extent that payment of consideration to the holders of the Company's Common Stock in connection with the Corporate Transaction is delayed as a result of escrows, earn outs, holdbacks or any other contingencies.

The Board need not take the same action or actions with respect to all Stock Awards or portions thereof or with respect to all Participants. The Board may take different actions with respect to the vested and unvested portions of a Stock Award.

(d) Change in Control. A Stock Award may be subject to additional acceleration of vesting and exercisability upon or after a Change in Control as may be provided in the Stock Award Agreement for such Stock Award or as may be provided in any other written agreement between the Company or any Affiliate and the Participant, but in the absence of such provision, no such acceleration will occur.

10. Plan Term; Earlier Termination or Suspension of the Plan.

(a) Plan Term. The Board may suspend or terminate the Plan at any time. The Plan shall continue indefinitely until it is terminated by the Board as provided in this Section. After termination of the Plan the applicable provisions of the Plan will continue in effect with respect to a Stock Award granted under the Plan for as long as such Stock Award remains outstanding. Notwithstanding the foregoing, no Incentive Stock Option may be granted under the Plan after the day before the 10th anniversary of the earlier of (i) the date the Plan is adopted by the Board, or (ii) the date the Plan is approved by the stockholders of the Company. No Stock Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) No Impairment of Rights. Suspension or termination of the Plan will not impair rights and obligations under any Stock Award granted while the Plan is in effect except with the written consent of the affected Participant or as otherwise permitted in the Plan.

11. Effective Date of Plan.

This Plan will become effective on the Effective Date.

12. Choice of Law.

The laws of the State of Delaware will govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. Definitions. As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

(a) "***Affiliate***" means, at the time of determination, any "parent" or "majority-owned subsidiary" of the Company, as such terms are defined in Rule 405. The Board will have the authority to determine the time or times at which "parent" or "majority-owned subsidiary" status is determined within the foregoing definition.

(b) "***Board***" means the Board of Directors of the Company.

(c) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Stock Award after the Effective Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure, or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(d) "***Cause***" will have the meaning ascribed to such term in any written agreement between the Participant and the Company or an Affiliate defining such term and, in the absence of such agreement, such term means, with respect to a Participant, the occurrence of any of the following events: (i) such Participant's commission of any felony or any crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof; (ii) such Participant's attempted commission of, or participation in, a fraud or act of dishonesty against the Company or any Affiliate; (iii) such Participant's intentional, material violation of any contract or agreement between the Participant and the Company or any Affiliate or of any statutory duty owed to the Company or any Affiliate; (iv) such Participant's unauthorized use or disclosure of the Company's or any Affiliates's confidential information or trade secrets; or (v) such Participant's gross misconduct. The determination that a termination of the Participant's Continuous Service is either for Cause or without Cause will be made by the Board, in its sole discretion. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Stock Awards held by such Participant will have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose.

(e) "***Change in Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control will not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities or (C) solely because the level of Ownership held by any Exchange Act Person (the "***Subject Person***") exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control will be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities representing more than 50% of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than 50% of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction; or

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition.

Notwithstanding the foregoing definition or any other provision of this Plan, (A) the term Change in Control will not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company, and (B) the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant will supersede the foregoing definition with respect to Stock Awards subject to such agreement; *provided, however*, that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the foregoing definition will apply.

(f) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(g) "***Committee***" means a committee of one or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(h) "***Common Stock***" means the non-voting common stock of the Company.

(i) "***Company***" means **FibroBiologics, Inc.**, a **Delaware** corporation.

(j) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services including, without limitation, a Scientific Advisory Board member, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, will not cause a Director to be considered a "Consultant" for purposes of the Plan.

(k) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Director or Consultant or a change in the Entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, will not terminate a Participant's Continuous Service; *provided, however*, that if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board in its sole discretion, such Participant's Continuous Service will be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. For example, a change in status from an Employee of the Company to a Consultant of an Affiliate or to a Director will not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service will be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate, or their successors. Notwithstanding the foregoing, a leave of absence will be treated as Continuous Service for purposes of vesting in a Stock Award only to such extent as may be provided in the Company's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law.

(l) "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale or other disposition of all or substantially all, as determined by the Board in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) a sale or other disposition of more than 50% of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(m) "***Director***" means a member of the Board.

(n) "***Disability***" means, with respect to a Participant, the inability of such Participant to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than twelve (12) months as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code, and will be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(o) "***Effective Date***" means the effective date of this Plan, which is the earlier of (i) the date that this Plan is first approved by the Company's stockholders, and (ii) the date this Plan is adopted by the Board.

(p) "***Employee***" means any person employed as a common law employee by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(q) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(r) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(s) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" will not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the Effective Date, is the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities.

(t) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined by the Board in compliance with Section 409A of the Code or, in the case of an Incentive Stock Option, in compliance with Section 422 of the Code.

(u) "***Incentive Stock Option***" means an option granted pursuant to Section 5 of the Plan that is intended to be, and that qualifies as, an "incentive stock option" within the meaning of Section 422 of the Code.

(v) "***Nonstatutory Stock Option***" means an option granted pursuant to Section 5 of the Plan that does not qualify as an Incentive Stock Option.

(w) "***Officer***" means any person designated by the Company as an officer.

(x) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(y) "***Option Agreement***" means a written agreement between the Company and an Optionholder evidencing the terms and conditions of an Option grant. Each Option Agreement will be subject to the terms and conditions of the Plan.

(z) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(aa) "***Other Stock Award***" means an award based in whole or in part by reference to the Common Stock which is granted pursuant to the terms and conditions of Section 6(c).

(bb) "***Other Stock Award Agreement***" means a written agreement between the Company and a holder of an Other Stock Award evidencing the terms and conditions of an Other Stock Award grant. Each Other Stock Award Agreement will be subject to the terms and conditions of the Plan.

(cc) "***Own***," "***Owned***," "***Owner***," "***Ownership***" A person or Entity will be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(dd) "***Participant***" means a person to whom a Stock Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Stock Award in accordance with the terms of the Plan.

(ee) "***Plan***" means this **2022** Stock Plan.

(ff) "***Restricted Stock Award***" means an award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(a).

(gg) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. Each Restricted Stock Award Agreement will be subject to the terms and conditions of the Plan.

(hh) "***Restricted Stock Unit Award***" means a right to receive shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(b).

(ii) "***Restricted Stock Unit Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement will be subject to the terms and conditions of the Plan.

(jj) "***Rule 405***" means Rule 405 promulgated under the Securities Act.

(kk) "***Rule 701***" means Rule 701 promulgated under the Securities Act.

(ll) "***Securities Act***" means the Securities Act of 1933, as amended.

(mm) "***Stock Appreciation Right***" or "***SAR***" means a right to receive a payment equal in amount to the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 5.

(nn) "***Stock Appreciation Right Agreement***" means a written agreement between the Company and a holder of a Stock Appreciation Right evidencing the terms and conditions of a Stock Appreciation Right grant. Each Stock Appreciation Right Agreement will be subject to the terms and conditions of the Plan.

(oo) "***Stock Award***" means any award granted under the Plan, including an Incentive Stock Option, a Nonstatutory Stock Option, a Restricted Stock Award, a Restricted Stock Unit Award, a Stock Appreciation Right or any Other Stock Award.

(pp) "***Stock Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of a Stock Award grant. Each Stock Award Agreement will be subject to the terms and conditions of the Plan.

(qq) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than 50%.

(rr) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Affiliate.

AGREEMENT

THIS AGREEMENT (this "Agreement"), dated as of May 17, 2021 (the "Effective Date"), is made and entered into by and between SPINALCYTE LLC, a Texas limited liability company ("SpinalCyte"), and FIBROBIOLOGICS LLC, a Texas limited liability company ("FibroBiologics"). FibroBiologics and SpinalCyte are each referred to herein individually as a "Party" and collectively as the "Parties."

WHEREAS, SpinalCyte and FibroBiologics desire to execute a Patent Assignment Agreement in form and substance substantially similar to that attached as Exhibit A hereto (the "Patent Assignment Agreement"); and

WHEREAS, SpinalCyte and FibroBiologics desire to execute an Intellectual Property Cross-License Agreement in form and substance substantially similar to that attached as Exhibit B hereto (the "License Agreement," and together with the Patent Assignment Agreement, the "IP Agreements").

NOW, THEREFORE, in consideration of the mutual covenants and agreements hereinafter set forth, the Parties agree as follows:

1. Agreement. SpinalCyte hereby agrees to execute and deliver to FibroBiologics, and FibroBiologics hereby agrees to execute and deliver to SpinalCyte, each of the IP Agreements. The IP Agreements shall be dated effective as of such date mutually agreed to by the Parties.

2. Consideration. In consideration for the execution and delivery of the IP Agreements, FibroBiologics shall issue to SpinalCyte 35,000,000 Voting Shares of FibroBiologics.

3. Further Assurances. Each Party covenants and agrees to execute and deliver, or cause to be executed and delivered, to the other Party such instruments or further assurances as may, in the reasonable opinion of such other Party, be necessary or desirable to give effect to the provisions of this Agreement.

4. Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws and regulations of the State of Texas, excluding any conflict of laws rule that would result in the application of the laws of another jurisdiction.

5. Headings. Headings of the various articles and sections, where used herein, are merely present for convenience and shall not be used in construing this Agreement.

6. Entire Agreement. This Agreement and any Exhibits attached hereto constitute the entire agreement and understanding between the Parties with respect to the subject matter hereof and supersedes any prior agreement, understanding or arrangement between the Parties, whether oral or in writing, with respect to the subject matter hereof. No representation, undertaking or promise shall be taken to have been given or be implied from anything said or written in negotiations between the Parties prior to this Agreement except as expressly stated in this Agreement.

7. Modifications. This Agreement may not be modified or amended unless such modification or amendment is made in writing and is signed by the Parties.

8. Counterparts. This Agreement may be executed in two (2) counterparts, each of which shall be deemed an original, but which together shall constitute one and the same instrument.

9. Signatures. Facsimile signatures (including pdf signatures) transmitted by the Parties hereto shall be deemed as effective as original signatures on this Agreement.

[remainder of page intentionally left blank; signature page follows]

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their respective duly authorized officers as of Effective Date.

SpinalCyte, LLC

By: _____
Name: Pete Ohlendorf
Title: MGR

FibroBiologics, LLC

By: _____
Name: Pete Ohlendorf
Title: MGR

EXHIBIT A

PATENT ASSIGNMENT AGREEMENT

[Attached.]

EXHIBIT B

INTELLECTUAL PROPERTY CROSS-LICENSE AGREEMENT

[Attached.]

Exhibit 10.18

AMENDMENT 1
to
PATENT ASSIGNMENT AGREEMENT

This **AMENDMENT 1** ("Amendment 1") to the Patent Assignment Agreement (the "Assignment") dated May 17, 2021 entered into by and between **SPINALCYTE LLC**, a Texas limited liability company ("SpinalCyte"), and **FIBROBIOLOGICS, INC.**, a Delaware corporation ("FibroBiologics"), is effective as of August 2, 2022 ("Effective Date"). FibroBiologics and SpinalCyte are each referred to individually as a "Party" and collectively as the "Parties."

RECITALS

WHEREAS, SpinalCyte is the owner of all right title and interest in and to certain Patents, as defined in the Assignment.

WHEREAS, FibroBiologics is further developing Patents obtained from SpinalCyte through the Assignment.

WHEREAS, FibroBiologics wishes to purchase and receive from SpinalCyte all right, title and interest in an additional Patent owned by SpinalCyte, and SpinalCyte wishes to transfer sell and transfer all right, title and interest in this additional Patent to FibroBiologics for further development.

NOW, THEREFORE, in consideration of the foregoing, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto agree as follows:

1. Schedule A to the Assignment shall be amended to add the following Patent:

   PCT Patent Application No.: PCT/US2021/018160
   Title: Telomere Length Modulation Using Fibroblasts and Derivatives Thereof
   Inventor: Thomas Ichim et al.
   Docket Number: AMTK.P0061WO/1001155209

2. All other terms and conditions of the Assignment shall remain in full force and effect and no other changes are made as a result of this Amendment 1.

IN WITNESS WHEREOF, the Parties hereto have caused this **Amendment 1** to be executed b their duly authorized officers as of Effective Date.

SPINALCYTE, LLC

By: _____

Name: Pete O'Heeron

Title: Manager

FIBROBIOLOGICS, INC.

By: _____

Name: Pete O'Heeron

Title: CEO

Agreement Regarding Right of First Negotiation

This Agreement Regarding Right of First Negotiation dated January 20, 2023, is by and between SpinalCyte LLC ("SpinalCyte"), and FibroBiologics, Inc. ("FibroBiologics").

WHEREAS, SpinalCyte owns Series A Preferred Stock of FibroBiologics which has a $35 million liquidation preference to be paid before any distributions are made to the holders of any other class of stock;

WHEREAS, in order to raise additional capital, FibroBiologics wishes to amend its Certificate of Incorporation in order to make the liquidation preference of the Series A Preferred Stock pari passu with the liquidation preference to the Series B Preferred Stock to be issued in the upcoming financing by FibroBiologics and to provide that the Series A Preferred Stock will be cancelled for no consideration in certain events;

WHEREAS, in addition, SpinalCyte will agree to provide FibroBiologics with a right of first negotiation with respect to any sale or licensing of the technology owned by SpinalCyte;

WHEREAS, in exchange for SpinalCyte's agreement to amend the certificate of incorporation as so described, FibroBiologics will agree, on the terms described in this Agreement, to provide to SpinalCyte 15% of any equity investments in FibroBiologics prior to the occurrence of certain events; and

NOW, THEREFORE, In consideration of the above and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, SpinalCyte and FibroBiologics hereby agree as follows:

Section 1.1 Right of First Negotiation.

(a) FibroBiologics' Right of First Negotiation. At any time prior to the fifth anniversary of the date of this Agreement, if SpinalCyte or any subsidiary of SpinalCyte (i) decides to start a process to sell or otherwise transfer or license to a third party any of the intellectual property of SpinalCyte, or (ii) receives an offer from a third party to buy any of the intellectual property of FibroBiologics then within three business days, SpinalCyte shall provide FibroBiologics with written notice (a "Transfer Notice") that either (A) it intends to start or effect such sale, transfer or license, or (B) it is in receipt of such offer.

(b) Grant. SpinalCyte hereby unconditionally and irrevocably grants to FibroBiologics, alone, the right, but not the obligation, to make an offer pursuant to Section 1.1(c) to acquire or license such intellectual property (the "Offer Right").

(c) Offer Notice. To exercise its Right of First Negotiation under this Section 1.1, FibroBiologics must deliver a written notice of its intent to negotiate to SpinalCyte (the "***ROFN Notice***") within ten business days of receiving a Transfer Notice written notice of the transfer or license. Upon receipt of the ROFN Notice, subject to Section 1.1(d), SpinalCyte shall for a period of thirty days, provide FibroBiologics with reasonable access to the management team of SpinalCyte and such information as FibroBiologics may reasonably request to negotiate on an exclusive basis the terms of a potential transfer or license of the intellectual property to FibroBiologics.

(d) No Obligations. SpinalCyte will not be under any obligation to accept any offer from FibroBiologics; *provided*, that if SpinalCyte proceeds with the proposed transaction to a third party after rejecting FibroBiologics' offer with respect to such proposed transaction, the proposed transaction must be at a price and on other terms and conditions that in the aggregate are not materially less favorable

to SpinalCyte than those offered by FibroBiologics. If SpinalCyte has not completed such proposed transaction to a third party within sixty days after delivery of Transfer Notice and still desires to complete such transaction, then it will be required to deliver a new written Transfer Notice and follow the process set forth in this Section 1.1.

Section 1.2 **Approval of Amended and Restated Certificate of Incorporation.** SpinalCyte agrees to vote its shares of Series A Preferred Stock of FibroBiologics to approve the Amended and Restated Certificate of Formation of FibroBiologics in the form attached hereto as Exhibit A (the "Amended Charter").

Section 1.3 **Distribution of Proceeds.** At any time prior to the closing of an IPO or Deemed Liquidation Event (as such terms are defined in the Amended Charter), FibroBiologics will distribute to SpinalCyte 15% of any gross proceeds actually received by FibroBiologics as an equity investment in its Non-voting Common Stock, Common Stock, or Preferred Stock.

Section 1.4 **Successors and Assigns.** This Agreement shall be binding on and shall inure to the benefit of each party and such party's successors and assigns.

Section 1.5 **Entire Agreement.** This Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof and supersedes any and all previous or contemporaneous agreements or understandings with respect thereto.

Section 1.6 **Governing Law.** This Agreement shall be governed by and construed in accordance with the internal laws of the State of Texas without giving effect to any choice or conflict of law provision or rule (whether of the State of Texas or any other jurisdiction).

Section 1.7 **Counterparts.** This Agreement may be executed in multiple counterparts, each of which shall be deemed an original, and all of which taken together shall constitute one instrument. A copy of this Agreement, signed and delivered by telecopy, facsimile, or electronic transmission, shall be considered an original, executed instrument.

[Remainder of Page Left Blank]

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first set forth above.

FibroBiologics, Inc.

By: _____
Name: Pete O'Heeron
Title: CEO

SpinalCyte LLC

By: _____
Name: Pete O'Heeron
Title: Manager

Exhibit 23.2

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the use in the Prospectus constituting a part of this Registration Statement to Form S-1 of our report dated April 28, 2023, except for the effects of the reverse stock split described in Note 13, as to which the date is November 7, 2023, relating to the financial statements of FibroBiologics, Inc. as of and for the years ended December 31, 2022 and 2021, which is included in that Prospectus. We also consent to the reference to our firm under the caption "Experts" in the Prospectus.

/s/ WithumSmith+Brown, PC
East Brunswick, New Jersey
November 7, 2023

Exhibit 23.3

RUSH-PRESBYTERIAN-ST. LUKE'S MEDICAL CENTER
RUSH UNIVERSITY

RUSH
DEPARTMENT OF ORTHOPEDIC SURGERY

HOWARD S. AN, M.D.
THE MORTON INTERNATIONAL PROFESSOR
DIRECTOR, SPINE FELLOWSHIP PROGRAM

1725 W. HARRISON STREET • SUITE 1063, CHICAGO, IL 60612-3824 • 312.243.4244
FAX 312.942.1516
RUSH MEDICAL COLLEGE

June 24, 2023

Summary of animal study results from Howard An, M.D., Director, Spine Fellowship Program, Rush University Medical College:

> *Our studies have shown that this biological treatment using human dermal fibroblast cells, has great potential as a cell therapy for disc degeneration. When these cells were injected into a degenerating rabbit disc, they were retained in the disc for up to 8 weeks. Collagen Type II gene expression, a marker for disc repair and regeneration, was higher in the discs treated with human dermal fibroblast cells than those in the control treatment. Also higher in the cell treated discs were the disc heights and cell number. Together, this data suggests that human dermal fibroblast cells are a promising option for cell therapy to restore the biological function and reduce symptoms of intermediate or progressive degenerative discs.*

I approve for Fibrobiologics Inc. to use this statement for S-1 filing.

Howard S. An, M.D

Exhibit 107

CALCULATION OF FILING FEE TABLE

FORM F-4
(Form type)

FibroBiologics, Inc.
(Exact name of Registrant as specified in its charter)

Table 1: Newly Registered Securities and Carry Forward Securities

	Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered (1)	Proposed Maximum Offering Price Per Security	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid in Connection with Unsold Securities to be Carried Forward
Newly Registered Securities												
Fees to be Paid	Equity	Shares of Common Stock, par value $0.00001 per share	457(d)	4,791,367	$ 15.55(2)	$ 74,314,102	0.0001476	$ 10,968.76	—	—	—	—
Fees Previously Paid	—	—	—	—	—	—	—	—	—	—	—	—
Carry Forward Securities												
Carry Forward Securities	—	—	—	—		—	—	—	—	—	—	—
				Total Offering Amounts		$ 74,314,102		$ 10,968.76				
				Total Fees Previously Paid				—				
				Total Fee Offsets				—				
				Net Fee Due				$ 10,968.76				

(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), the Registrant is also registering such additional indeterminate number of ordinary shares as may become issuable as a result of share splits or share dividends.

(2) Estimated solely for purposes of calculating the registration fee in accordance with Rule 457(d) under the Securities Act of 1933, as amended (the "Securities Act"), based on a market value per share reference price of $15.55.