Filed pursuant to 424(b)(4)
Registration Statement No. 333-280303

16,022,644 Shares

FibroBiologics, Inc.

Common Stock

This prospectus relates to the registration of the resale or other disposition of up to 16,022,644 shares of our common stock, or the Draw-Down Shares, by GEM Global Yield LLC SCS, or GEM. GEM is also referred to in this prospectus as the Registered Stockholder. We are registering the offer and sale of these securities to satisfy certain registration rights we have granted in connection with the share purchase agreement dated November 12, 2021, with GEM and GEM Yield Bahamas Limited, or the GEM SPA. The Draw-Down Shares may be acquired by GEM pursuant to the GEM SPA.

The 16,022,644 shares of our common stock being offered for resale pursuant to this prospectus by GEM represents 60.4% of our public float and 49.0% of our shares of common stock outstanding as of June 17, 2024, and 47.1% of our outstanding shares of common stock assuming the issuance of all 1,310,104 shares issuable upon full exercise of our outstanding warrants. The sale of such shares by GEM, or the perception that these sales could occur, could depress the market price of our shares of common stock. A reduction in the market price of our shares could materially and adversely affect our ability to raise capital, which in turn could adversely affect our ability to make necessary investments and, therefore, could affect our results of operations. We do not know the price at which GEM would acquire the Draw Down Shares, but based on the terms of the GEM SPA, GEM would acquire the Draw Down Shares at a 10% discount to the market price of our common stock. This will create an incentive for GEM to sell the Draw Down Shares in the near term because they will have purchased the shares at prices lower than the then-current trading price. While GEM may experience a positive rate of return on their investment in our shares of common stock due to the 10% discount, the public securityholders are unlikely to experience a similar rate of return on the securities they purchased at market prices without a 10% discount.

GEM may use one or more financial intermediaries to effectuate sales, if any, of the Draw-Down Shares that it may acquire from us pursuant to the GEM SPA. Each such financial intermediary may receive commissions for executing such sales and, if so, such commissions will not exceed customary brokerage commissions. GEM, as well as such financial intermediaries, are "underwriters" within the meaning of Section 2(a)(11) of the Securities Act of 1933, as amended, or the Securities Act, and any profit on sales of the Draw Down Shares by them and any discounts, commissions or concessions received by them may be deemed to be underwriting discounts and commissions under the Securities Act. Although GEM is obligated to purchase the Draw Down Shares under the terms of the GEM SPA to the extent we choose to sell such Draw Down Shares to it (subject to certain conditions), there can be no assurances that GEM will sell any or all of the Draw Down Shares purchased under the GEM SPA pursuant to this prospectus. GEM will bear all commissions and discounts, if any, attributable to its sale of the Draw Down Shares. See "Plan of Distribution." If GEM chooses to sell its shares of common stock, we will not receive any proceeds from such sales.

We will pay the expenses of registering these shares, but all selling and other expenses incurred by GEM will be paid by it.

For the purposes of calculating the number of shares of common stock that may be sold to GEM pursuant to the GEM SPA and which are being registered by this prospectus, we have assumed a minimum purchase price of $6.06 per share, as more fully described under "Prospectus Summary – GEM SPA", and reduced the maximum gross proceeds we are entitled to draw down in exchange for shares of our common stock pursuant to the GEM SPA by the gross proceeds received to date for the 227,057 shares of our common stock previously sold to GEM under the GEM SPA. Our common stock is listed on the Nasdaq Global Market under the symbol "FBLG". On June 17, 2024, the last reported sales price of our common stock was $6.73 per share.

Our founder and Chief Executive Officer, Pete O'Heeron, beneficially owns approximately 60% of the voting power of our outstanding voting securities, and we are 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 12 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 June 25, 2024

TABLE OF CONTENTS

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 GEM 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 GEM take responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. GEM is offering to sell, and seeking offers to buy, shares of our 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 GEM 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 GEM 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 Stockholder 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, or incorporated by reference into, 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.

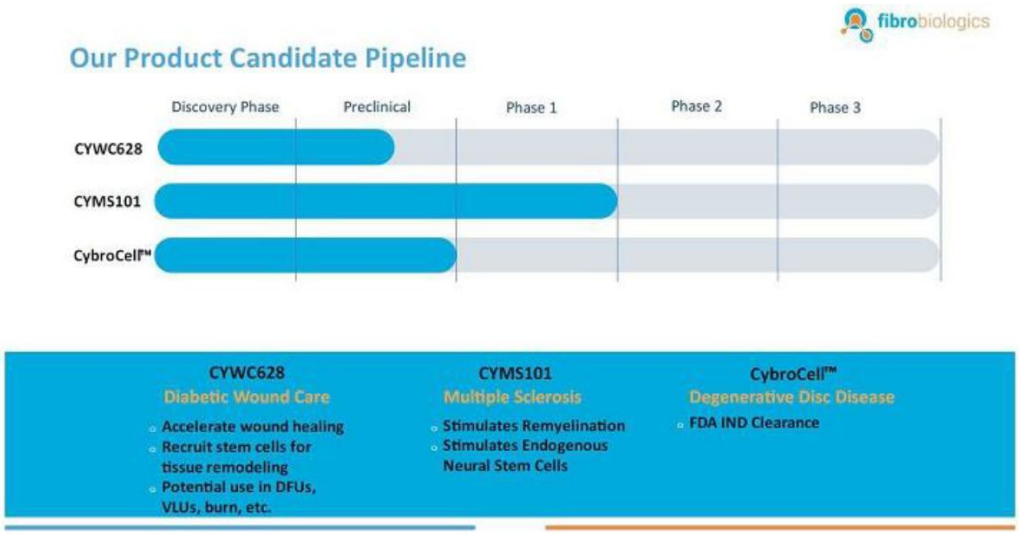
To date, however, no fibroblast therapy products have been approved and there have only been a few clinical trials involving fibroblasts. The costs to develop, manufacture, and commercialize product candidates utilizing our fibroblasts technology platform may exceed our estimates. Furthermore, the biotechnology 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, our chief financial officer, and our general counsel, with combined 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.

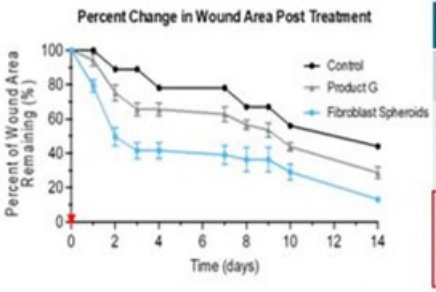
Our Current Pipeline

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



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 to use and more viable than single cell fibroblasts, and generate 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.

The following graph and chart summarize the results of our Phase 4 pre-clinical study.



Comparison	D1	D2	D3	D4	D7	D8	D9	D10	D14
Product G vs. Control	ns	ns	ns	ns	ns	ns	ns	ns	ns
Fibroblast Spheroids vs. Control	**	****	****	****	****	****	****	***	****
Fibroblast Spheroids vs. Product G	*	****	****	***	***	**	**	*	*

- 58.5% reduction in wound size within 4 days of treatment with fibroblast spheroids
- 34.5% reduction in wound size with 4 days of treatment with Product G

Note: * indicates level of statistical significance with a p value of ≤ 0.05
** indicates level of statistical significance with a p value of ≤ 0.01
*** indicates level of statistical significance with a p value of ≤ 0.001
**** indicates level of statistical significance with a p value of ≤ 0.0001

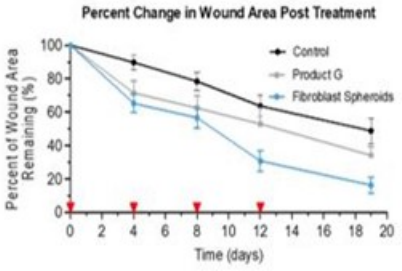
CYMS101 for Multiple Sclerosis: We are developing CYMS101 as an allogeneic fibroblast cell-based therapy to treat multiple sclerosis, or MS. After completing animal studies using CYMS101 (allogeneic fibroblast cells), we received approval from Mexico to conduct clinical investigations using the fibroblast 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.

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.

Business Update and Recent Developments

CYWC628 for Wound Healing: For our Phase 5 pre-clinical study, using a diabetic mouse model (BKS.Cg-Dock7m), we studied the impact of multiple administrations of CYWC628 spheroids and Grafix™ on a chemically induced chronic wound often used to mimic diabetic foot ulcers in animal models. The CYWC628 spheroids were administered on Day 0, Day 4, Day 8 and Day 12. The results of our study with this mouse model of a chronic wound indicated (i) a 34.8% reduction in wound area four days after the first administration (day 4) of CYWC628 as compared to 28.6 % for Grafix™ ($p > 0.05$), which was not statistically significant, and 10.2% for the untreated saline control group ($p < 0.05$); (ii) a 43.4% reduction in wound area four days after the second administration (day 8) of CYWC628 as compared to 37.6 % for Grafix™ ($p > 0.05$), which was not statistically significant, and 21.7% for the untreated saline control group ($p < 0.05$); (iii) a 69.3% reduction in wound area four days after the third administration (day 12) of CYWC628 as compared to 47.13% for Grafix™ ($p < 0.05$), which was statistically significant, and 36.4% for the untreated saline control group ($p < 0.05$), which was also statistically significant.; and (iv) an 83.8% reduction in wound area four days after the fourth administration (Day 19) of CYWC628 as compared to 66% for Grafix™ ($p< 0.05$), which was statistically significant, and 55.2% for the untreated saline control group ($p<0.01$), which was also statistically significant. Grafix™ results as compared to saline control were not statistically significant at any of the measured timepoints, whereas CYWC628 as compared to saline control was statistically significant at all measured timepoints.

The following graph and chart summarize the results of our Phase 5 pre-clinical study.



	1st dose	2nd dose	3rd dose	4th dose
Product G vs. Control	ns	ns	ns	ns
Fibroblast spheroids vs. Control	*	**	**	**
Fibroblast spheroids vs. Product G	ns	ns	*	*

n=10 for each cohort

At day 19: **83.8% average wound closure for fibroblast spheroids** compared with 66.0% for Product G and 51.2% for Control

Note: * indicates level of statistical significance with a p value of ≤ 0.05
** indicates level of statistical significance with a p value of ≤ 0.01

Effective wound healing is not only determined by the efficiency of wound closure, but also by the quality of the healed wound. For our multiple CYWC628 administration study, we also looked at several metrics essential to the quality of wound healing. These metrics are re-epithelialization, granulation, cell proliferation, neo-vascularization, and fibroblast recruitment. The results of the study indicated that at day 19 after the final treatment, CYWC628 had a significantly improved epithelization, granulation, cell proliferation (as measured using Ki67), neo-vascularization (as measured by CD31 and VEGF), and fibroblast recruitment (as measured by αSMA and IL-6) compared to control and Grafix™.

For our remaining pre-clinical studies, we will investigate multiple administrations of CYWC628 on a chemically induced chronic wound NONcNZO10/LtJ mouse model, complete a dose titration study to provide information on effective dose range of CYWC628, and complete an acute and chronic toxicity study. We expect to complete these studies in the 3rd quarter of 2024. Based upon our results achieved to date and the expected timing of these additional pre-clinical studies, we are planning to initiate a Phase 1/2 clinical trial in Australia for treatment of diabetic foot ulcers in 2025 with results expected in the third quarter of 2025.

Manufacturing: We are planning to complete a technology transfer of our cell manufacturing processes to a contract development and manufacturing organization, or CDMO, and conduct feasibility studies for our fibroblast spheroid-based drug product, with the intent to enter into a master services agreement with that CDMO to supply drug product for clinical trials. We expect to produce a master cell bank, working cell bank, and drug product for use in clinical trials by year end 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:

- There is substantial doubt about our ability to continue as a going concern.
- 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.
- We may not be able to continue to meet Nasdaq's continued listing requirements.
- 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 are a "controlled company" within the meaning of The Nasdaq Stock Market Rules because our insiders beneficially own more than 50% of the voting power of our outstanding voting securities.
- We 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 have a very short trading history on Nasdaq. 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.

GEM SPA

In order to better manage working capital and liquidity needs, we, GEM and GEM Yield Bahamas Limited entered into the GEM SPA, which allows us to fund general corporate purposes and working capital needs. We are entitled to draw down up to $100 million of gross proceeds, or the Aggregate Limit, in exchange for shares of our common stock, at a price equal to 90% of the average closing bid price of our common stock on Nasdaq for a 30-day period, subject to meeting the terms and conditions of the GEM SPA.

For the purposes of calculating the number of shares of our common stock that GEM may purchase pursuant to the GEM SPA and which are being registered by this prospectus, we have assumed a minimum purchase price per share of common stock of $6.06 and reduced the Aggregate Limit by the gross proceeds received to date for the 227,057 shares of our common stock previously sold to GEM under the GEM SPA in February and March 2024. As detailed above, should we decide to draw down under the GEM SPA, the price per share would be equal to 90% of the average closing bid price of our common stock on Nasdaq during each 30-day pricing period.

Implications of being a Controlled Company

Our founder and Chief Executive Officer, Pete O'Heeron, collectively beneficially owns approximately 60% of the voting power of our outstanding voting securities and we are 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 continue to 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 incorporated by reference into this prospectus. The statements of operations and cash flows data for the years ended December 31, 2023 and 2022, have been derived from our audited financial statements incorporated by reference into this prospectus. The statements of operations and cash flows data for the three months ended March 31, 2024 and 2023, and the balance sheet data as of March 31, 2024, have been derived from our unaudited interim condensed financial statements incorporated by reference into this prospectus. The unaudited interim condensed 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.

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

	For the three months ended March 31,		For the years ended December 31,	
	2024	2023	2023	2022
	(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	$ 960	$ 478	$ 2,368	$ 1,147
General, administrative and other	2,490	1,787	6,521	3,320
Total operating expenses	3,450	2,265	8,889	4,467
Loss from operations	(3,450)	(2,265)	(8,889)	(4,467)
Other income/(expense):				
Change in fair value of liability instrument	(3,104)	—	(7,236)	—
Commitment fee expense	(1,941)	—	—	—
Other income/(expense)	—	(15)	(213)	—
Interest income	39	—	—	—
Interest expense	(4)	(135)	(147)	(654)
Net loss	$ (8,460)	$ (2,415)	$ (16,485)	$ (5,121)
Deemed dividend	—	(2,573)	(2,573)	—
Net loss attributable to common stockholders	$ (8,460)	$ (4,988)	$ (19,058)	$ (5,121)
Net loss per share, basic and diluted	$ (0.27)	$ (0.18)	$ (0.68)	$ (0.18)
Weighted-average shares outstanding, basic and diluted	31,133,762	28,230,842	28,230,842	28,230,842
Statements of Cash Flows Data:				
Net cash used in operating activities	$ (4,275)	$ (2,036)	$ (6,401)	$ (4,066)
Net cash used in investing activities	$ (8)	$ (56)	$ (495)	$ —
Net cash provided by financing activities	$ 3,278	$ 14,566	$ 13,793	$ 5,925

	As of March 31, 2024
	(unaudited, in thousands)
Balance Sheet Data:	
Cash and cash equivalents	$ 8,158
Working capital[1]	$ (5,063)
Total assets	$ 11,399
Total liabilities	$ 15,262
Total stockholders' equity/(deficit)	$ (3,863)

[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. Before you decide to invest in our common stock, you should carefully consider the risks set forth under the section titled "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2023, or the Annual Report, and in our Quarterly Report on Form 10-Q for the three months ended March 31, 2024, or the Quarterly Report, both of which are incorporated by reference herein. You should also refer to the other information contained in this prospectus, and the documents incorporated by reference herein, including our financial statements and related notes and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in our Annual Report and in our Quarterly Report. The occurrence of one or more of the events or circumstances described in such 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 above 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.

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 ®, ™ or ℠ 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

GEM Global Yield LLC SCS, or the Registered Stockholder, may, or may not, elect to sell shares of our common stock covered by this prospectus. To the extent the 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*."

We expect to use the net proceeds from the sales under the GEM SPA for general corporate purposes.

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 March 31, 2024 (unaudited), as follows.

- on an actual basis; and
- on an as adjusted basis to give effect to the 16,022,644 shares of common stock that we may sell to GEM pursuant to the GEM SPA that are being registered in this registration statement at an assumed offering price of $6.06 per share, after deducting estimated offering expenses payable by us.

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

	As of March 31, 2024	
	Actual	As Adjusted
	(in thousands, except for share and per share amounts)	
Cash and cash equivalents	$ 8,158	$ 105,131
Stockholders' equity:		
Preferred Stock, $0.00001 par value per share; 8,750,000 Series A Preferred shares authorized, actual and as adjusted; no Series A Preferred shares issued and outstanding, actual and as adjusted	—	—
Preferred Stock, $0.00001 par value per share; 5,000,000 Series B Preferred shares authorized, actual and as adjusted; no Series B Preferred shares issued and outstanding, actual and as adjusted	—	—
Preferred Stock, $0.00001 par value per share; 5,000,000 Series B-1 Preferred shares authorized, actual and as adjusted; no Series B-1 Preferred shares issued and outstanding, actual and as adjusted	—	—
Preferred Stock, $0.00001 par value per share; 2,500 Series C Preferred shares authorized, issued and outstanding, actual and as adjusted	—	—
Non-voting Common stock, $0.00001 par value per share; 30,000,000 shares authorized, actual and as adjusted; no shares issued and outstanding, actual and as adjusted	—	—
Voting Common Stock, $0.00001 par value per share; 100,000,000 shares authorized, actual and as adjusted; 32,719,125 shares issued and outstanding, actual; 48,741,769 shares issued and outstanding, as adjusted	—	—
Additional paid-in capital	28,954	136,710
Accumulated deficit	(32,817)	(43,600)
Total stockholders' equity/(deficit)	$ (3,863)	$ 93,110
Total capitalization	$ (3,863)	$ 93,110

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

- 4,005,375 shares of common stock issuable upon exercise of stock options outstanding under our 2022 Stock Plan (as defined herein) as of March 31, 2024;
- 8,494,625 shares of common stock reserved for issuance under our 2022 Stock Plan;
- 10,321 shares of common stock underlying warrants that were issued in connection with the issuance of certain shares of the Series B-1 Preferred Stock; and
- 1,299,783 shares of common stock underlying warrants to purchase common stock that were issued to GYBL upon the Direct Listing pursuant to the GEM SPA.

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	53	Chief Financial Officer
Hamid Khoja, Ph.D.	56	Chief Scientific Officer
Ruben A. Garcia	47	General Counsel

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 former parent company, 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.

Ruben Garcia. Ruben Garcia has served as our General Counsel since March 1, 2024. Prior to FibroBiologics, Mr. Garcia most recently served as Senior Vice President, General Counsel and Corporate Secretary at AcelRx Pharmaceuticals, Inc. (n/k/a Talphera, Inc.), a pharmaceutical company, from April 2019 to February 2022. In that role, he was responsible for all legal and compliance matters. Prior to AcelRx, Mr. Garcia was Senior Corporate Counsel and Assistant Secretary at Ultragenyx Pharmaceutical Inc., a biopharmaceutical company, from November 2016 to April 2019, with responsibility for SEC and governance matters. Prior to Ultragenyx, Mr. Garcia was an attorney at Vinson & Elkins LLP and Jones Day, where he practiced in the areas of capital markets, securities offerings, corporate governance and mergers and acquisitions. Mr. Garcia holds a B.A. in Government and Economics from Georgetown University and a J.D. from Stanford Law School.

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	58	Director
Victoria Niklas, M.D.	65	Director
Richard Cilento, Jr., MBA	62	Director
Stacy Coen, MBA	53	Director
Matthew Link	49	Director

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

Robert Hoffman. 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, and 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. 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, Clear Lake. 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 most recently served as 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. 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 amended and restated 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.

Pursuant to our amended and restated 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.

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.

The composition and functioning of our board of directors and each of our committees complies with all applicable requirements of Nasdaq and the rules and regulations of the SEC.

Staggered Board

In accordance with the terms of our amended and restated certificate of incorporation, our board of directors is divided into three staggered classes of directors and each is 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 and will be subject to their earlier death, disqualification, resignation or removal.

- Our Class I directors are Robert Hoffman and Richard Cilento, Jr.;
- Our Class II directors are Mathew Link and Victoria Niklas; and
- Our Class III directors are 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 board of directors can 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 governance and nominating 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. Each committee's charter is 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, or recommending to the board of directors for approval, 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 making recommendations to our board of directors with respect to the compensation of our other executive officers or approving such compensation of 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.

Governance and Nominating Committee

The members of our governance and nominating 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 governance and nominating committee is "independent" as defined in Nasdaq rules. The governance and nominating 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 corporate governance framework and related governance documents; and
- overseeing the evaluation of our board of directors and management.

Code of Conduct

We have adopted a written code of ethics and business conduct 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. A current copy of the code is posted on our website at www.fibrobiologics.com. If we make any substantive amendments to, or grant any waivers from, the code of ethics and business conduct 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.

PRINCIPAL AND REGISTERED STOCKHOLDERS

Security Ownership of Certain Beneficial Owners and Management

The following table sets forth as of June 17, 2024:

- certain information regarding the beneficial ownership of our voting securities (being our voting common stock and our Series C Preferred Stock) 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 Stockholder.

The Registered Stockholder may, or may not, elect to sell the common stock covered by this prospectus, as and to the extent it may determine. The Registered Stockholder 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. As a result, we will have no input if and when the Registered Stockholder may, or may not, elect to sell its common stock or the prices at which any such sales may occur. See "*Plan of Distribution*."

Information concerning the Registered Stockholder 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 Stockholder 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 Stockholder, or the amount or percentage of shares of common stock that will be held by the Registered Stockholder upon consummation of any particular sale. In addition, the Registered Stockholder 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. For purposes of the table below, however, we have assumed that after termination of this offering none of the shares of common stock covered by this prospectus will be beneficially owned by the Registered Stockholder and further assumed that the Registered Stockholder will not acquire beneficial ownership of any additional securities during the offering.

We are not party to any arrangement with the Registered Stockholder or any broker-dealer with respect to sales of common stock by the Registered Stockholder other than the GEM SPA. 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 June 17, 2024. 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.

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) 32,719,125 shares of our common stock outstanding as of June 17, 2024; and (ii) 2,500 shares of our Series C Preferred Stock outstanding as of June 17, 2024.

Each share of our Series C Preferred Stock is entitled to 13,000 votes per share. The percentage of total voting power in the table below is based on, the sum of (i) 32,719,125 votes, being the total number of votes associated with the 32,719,125 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.

The Registered Stockholder has not, nor has it within the past three years had, any position, office, or other material relationship with us, other than as disclosed in this prospectus. 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 Offering					
	Common Stock		Series C Preferred Stock		Percentage of Total Voting	Shares of Common Stock Being Registered Pursuant to this
Name and address of Beneficial Owner	Shares	%	Shares	%	Power[1]	Prospectus
5% Stockholders:						
Pete O'Heeron, MSHA[2]	6,781,626	19.0%	2,500	100%	60.2%	—
Golden Knight Incorporated, L.P.[3]	2,125,001	6.0%	—	—	3.3%	—
Executive Officers and Directors						
Pete O'Heeron, MSHA[2]	6,781,626	19.0%	2,500	100%	60.2%	—
Mark Andersen, CPA CFA[4]	184,845	*	—	—	*	—
Hamid Khoja, Ph.D. [5]	187,128	*	—	—	*	—
Ruben A. Garcia	—	—	—	—	—	—
Robert Hoffman [6]	85,848	*	—	—	*	—
Victoria Niklas, M.D.[7]	85,848	*	—	—	*	—
Richard Cilento, Jr., MBA[8]	171,573	*	—	—	*	—
Stacy Coen, MBA[9]	85,848	*	—	—	*	—
Matthew Link[10]	85,848	*	—	—	*	—
Directors and Executive Officers as a Group (9 persons)[11]	7,668,564	21.6%	2,500	100%	61.6%	—
Registered Stockholder:						
GEM Global Yield LLC SCS[12]	16,022,644	31.1%	—	—	19.7%	16,022,644
Total Number of Shares Being Registered						16,022,644

	Beneficial Ownership After the Offering				
	Common Stock		Series C Preferred Stock		Percentage of Total Voting
Name and address of Beneficial Owner	Shares	%	Shares	%	Power[1]
5% Stockholders:					
Pete O'Heeron, MSHA[2]	6,781,626	13.2%	2,500	100%	48.4%
Golden Knight Incorporated, L.P.[3]	2,125,001	4.1%	—	—	2.6%
Executive Officers and Directors					
Pete O'Heeron, MSHA[3]	6,781,626	13.2%	2,500	100%	48.4%
Mark Andersen, CPA CFA[4]	184,845	*	—	—	*
Hamid Khoja, Ph.D.[5]	187,128	*	—	—	*
Ruben A. Garcia	—	—	—	—	—
Robert Hoffman [6]	85,848	*	—	—	*
Victoria Niklas, M.D.[7]	85,848	*	—	—	*
Richard Cilento, Jr., MBA[8]	171,573	*	—	—	*
Stacy Coen, MBA[9]	85,848	*	—	—	*
Matthew Link[10]	85,848	*	—	—	*
Directors and Executive Officers as a Group (9 persons)[11]	7,668,564	14.9%	2,500	100%	49.4%
Registered Stockholder:					
GEM Global Yield LLC SCS[12]	—	—%	—	—	—%

* 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) Common Stock shares include 6,048,147 shares of common stock and 733,479 vested stock options to purchase 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. Each share of Series C Preferred Stock is entitled to 13,000 votes. For as long as they remain outstanding, the Series C Preferred Stock are 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.
(3) 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.
(4) Common Stock shares include 184,845 vested stock options to purchase common stock.
(5) Common Stock shares include 1,250 shares of common stock and 185,878 vested stock options to purchase common stock.
(6) Common Stock shares include 7500 shares of common stock and 78,348 vested stock options to purchase common stock.

(7) Common Stock shares include 7,500 shares of common stock and 78,348 vested stock options to purchase common stock.
(8) Common Stock shares include 93,225 shares of common stock and 78,348 vested stock options to purchase common stock.
(9) Common Stock shares include 7,500 shares of common stock and 78,348 vested stock options to purchase common stock.
(10) Common Stock shares include 7,500 shares of common stock and 78,348 vested stock options to purchase common stock.
(11) The 2,500 shares of Series C Preferred Stock held constitute the maximum number of Series C Preferred Stock we are authorized to issue. Each share of Series C Preferred Stock is entitled to 13,000 votes. For as long as they remain outstanding, the Series C Preferred Stock are 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 address for GEM Global Yield LLC SCS is 12C, rue Guillaume J. Kroll, L-1882 Luxembourg. The Common Stock shares and the percentage of total voting power attributed to GEM in the "Beneficial Ownership Prior to the Offering" table above assumes the purchase of all 16,022,644 shares of common stock pursuant to the GEM SPA that are being registered in this registration statement. Prior to such purchase, GEM has no voting power with respect to such shares.

DESCRIPTION OF CAPITAL STOCK

General

The following description summarizes certain important terms of our capital stock. We adopted an amended and restated certificate of incorporation that became effective in connection with the Direct Listing, and this description summarizes the provisions included in such document. 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 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 outstanding Series A Preferred Stock, all of which were held by FibroGenesis, were automatically canceled without the payment of additional consideration by or to the holder thereof, (ii) all of our outstanding non-voting common stock automatically converted, without the payment of additional consideration by or to the holder thereof, into voting common stock, on a one-for-one basis, (iii) all of our outstanding Series B Preferred Stock and all of our outstanding Series B-1 Preferred Stock automatically converted, 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 outstanding Series C Preferred Stock remained Series C Preferred Stock. Immediately after the Direct Listing, our issued and outstanding capital stock consisted of voting common stock and Series C Preferred Stock.

Our amended and restated certificate of incorporation and our bylaws, authorize us to issue 150,000,000 shares of capital stock, which may consist of: (i) 100,000,000 shares of voting common stock, par value $0.00001 per share, (ii) 30,000,000 shares of non-voting common stock, par value $0.00001 per share, and (iii) 20,000,000 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 outstanding non-voting common stock and convertible preferred stock (being our Series B Preferred Stock and Series B-1 Preferred Stock), as of January 31, 2024, there were 32,492,068 shares of our voting common stock outstanding, held by 1,169 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.

As of June 17, 2024, a total of 32,719,125 shares of our common stock and 2,500 shares of our Series C Preferred Stock were outstanding.

Common Stock

Our amended and restated certificate of incorporation provides that**:**

- holders of common stock 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 are entitled to one vote per share on matters to be voted on by stockholders and are also 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 provides that shares of preferred stock may be issued from time to time in one or more series. Our board of directors is 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 is 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

There is currently 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 are 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 rank senior to our common stock upon our liquidation, dissolution, winding up or otherwise.

The Series C Preferred Stock is 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 is entitled to 13,000 votes. The Series C Preferred Stock is entitled to receive the same prior notice of any meeting of stockholders as provided to our common stockholders.

The Series C Preferred Stock is not 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 is 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 remains 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 C 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 bylaws 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 requires 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 requires 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 bylaws 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 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 bylaws 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 requires 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 requires 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 requires 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 provides 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 grants 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 provides 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 bylaws 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, we entered into separate indemnification agreements with each of our directors and executive officers.

Section 203 of the DGCL

As a Delaware corporation, we are 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

Our common stock commenced trading on The Nasdaq Global Market under the symbol "FBLG" on January 31, 2024.

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

Sales of a substantial number of shares our common stock in the public market, 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 the Registered Stockholder may, or may not, elect to sell the Draw Down Shares or the prices at which any such sales may occur.

As of June 17, 2024, a total of 32,719,125 shares of our common stock were outstanding. All of the shares of common stock being registered for resale under the registration statement of which this prospectus forms a part will be freely tradable in the public market without restriction or further registration under the Securities Act, unless these shares are held by "affiliates," as that term is defined in Rule 144 under the Securities Act. Any shares not registered hereunder or pursuant to another registration statement 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 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.

Subject to the provisions of Rule 144 or Regulation S under the Securities Act, as well as our insider trading policy, these restricted securities will be available for sale in the public market after the date of this prospectus.

Rule 144

In general, under Rule 144 as currently in effect, 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. 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 equals 327,191 shares on June 17, 2024, or
- the average weekly trading volume of our common stock on Nasdaq 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.

Registration Statements on Form S-8

We have filed a registration statement on Form S-8 under the Securities Act to register 12,500,000 shares of our common stock subject to outstanding stock options or reserved for issuance under our 2022 Stock Plan. Such registration statement automatically became effective upon filing with the SEC on May 15, 2024. 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.

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 (including the Nasdaq) 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

Pursuant to this prospectus, the Registered Stockholder is offering up to 16,022,644 shares of our common stock we may sell to it from time to time, at our sole discretion, in accordance with the GEM SPA. The Registered Stockholder, and its pledgees, donees, transferees, assignees, or other successors in interest may sell their shares of common stock covered hereby directly to one or more purchasers or through brokers, dealers, or underwriters who may act solely as agents at market prices prevailing at the time of sale, at prices related to the prevailing market prices, at negotiated prices, or at fixed prices, which may be changed. We are not party to any arrangement with the Registered Stockholder or any broker-dealer with respect to sales of shares of common stock by the Registered Stockholder, other than the GEM SPA. As such, we do not anticipate receiving notice as to if and when the Registered Stockholder may, or may not, elect to sell its shares of common stock or the prices at which any such sales may occur, and there can be no assurance that the Registered Stockholder will sell any or all of its shares of common stock covered by this prospectus.

The sale of the shares of common stock offered by this prospectus could be effected in one or more of the following methods:

- ordinary brokers' transactions;
- transactions involving cross or block trades;
- through brokers, dealers, or underwriters who may act solely as agents;
- "at the market" into an existing market for the shares of common stock;
- in other ways not involving market makers or established business markets, including direct sales to purchasers or sales effected through agents;
- in privately negotiated transactions; or
- any combination of the foregoing.

GEM may use one or more financial intermediaries to effectuate sales, if any, of the Draw-Down Shares that it may acquire from us pursuant to the GEM SPA. Each such financial intermediary may receive commissions for executing such sales and, if so, such commissions will not exceed customary brokerage commissions. GEM, as well as such financial intermediaries, are "underwriters" within the meaning of Section 2(a)(11) of the Securities Act. GEM may use one or more registered broker-dealers to effectuate all sales, if any, of the shares of common stock that it may acquire from us pursuant to the GEM SPA. Such sales will be made at prices and at terms then prevailing or at prices related to the then current market price. Each such broker-dealer may receive commissions for executing such sales and, if so, such commissions will not exceed customary brokerage commissions.

We have advised GEM that it is required to comply with Regulation M promulgated under the Exchange Act pursuant to the GEM SPA. With certain exceptions, Regulation M precludes GEM, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase any security which is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the securities that may be offered by this prospectus. GEM has informed us that it did not engage in any short selling of our securities or other hedging activities prior to entering into the GEM SPA.

We will not receive any proceeds from the sale of shares of common stock by the Registered Stockholder. We will recognize costs related to this prospectus consisting of professional fees and other expenses. We plan to apply these costs against the proceeds received under draw-down notices issued pursuant to the GEM SPA. The Registered Stockholder will bear all incremental selling expenses, including commissions, brokerage fees and other similar selling expenses. We have agreed to indemnify GEM and certain other persons against certain liabilities in connection with the offering of our common stock offered hereby, including liabilities arising under the Securities Act or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities. GEM has agreed to indemnify us against liabilities under the Securities Act that may arise from certain written information furnished to us by GEM specifically for use in this prospectus or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities.

There can be no assurance that the Registered Stockholder will sell all or any of the securities that may be offered by this prospectus. In addition to sales made pursuant to this prospectus, the shares of common stock covered by this prospectus may be sold by the Registered Stockholder 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. The Registered Stockholder has the sole and absolute discretion not to accept any purchase offer or make any sale of securities if it deems the purchase price to be unsatisfactory at any particular time.

The Registered Stockholder may from time to time transfer, distribute (including distributions in kind), 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 registered stockholder included in this registration statement to include the transferee, distributee, pledgee, assignee, or other successors in interest as a registered stockholder under this prospectus. The Registered Stockholder 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.

The Registered Stockholder 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.

Our common stock is listed on the Nasdaq Global Market and trades under the symbol "FBLG". The transfer agent of our common stock is VStock Transfer LLC.

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 financial statements of FibroBiologics, Inc. as of and for the years ended December 31, 2023 and 2022 have been audited by Withum Smith+Brown, PC, an independent registered public accounting firm, as stated in their report incorporated by reference 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.

We are 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.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

SEC rules permit us to "incorporate by reference" certain information into this prospectus, which means that we can disclose important information about us by referring you to another document filed separately with the SEC. The information incorporated by reference is considered to be a part of this prospectus, except for information superseded by information contained in this prospectus or in any subsequently filed incorporated document. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. This means that you must carefully review all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. However, we undertake no obligation to update or revise any statements we make, except as required by law.

This prospectus incorporates by reference the documents listed below and any filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (in each case, other than those documents or the portions of those documents furnished and not filed with the SEC) on or after the date of this prospectus and prior to the termination of the offering covered by this prospectus:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, filed with the SEC on February 29, 2024;
- our Quarterly Report on Form 10-Q for the quarter ended March 31, 2024, filed with the SEC on May 14, 2024; and
- our Current Reports on Form 8-K, filed with the SEC on February 2, 2024, February 6, 2024, February 8, 2024, February 14, 2024, February 20, 2024, and April 26, 2024 (except, in each case, any information, including exhibits, furnished and not filed with the SEC).

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed to be modified or superseded to the extent that a statement contained in this prospectus or in any subsequently filed document which is or is deemed to be incorporated by reference in this prospectus modifies or supersedes that statement. Any statement so modified or superseded will not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

We will furnish without charge to each person, including any beneficial owner, to whom a prospectus is delivered, upon written or oral request, a copy of any or all of the documents incorporated by reference, including exhibits to these documents. Any such request may be made by writing or calling us at the following address or phone number:

FibroBiologics, Inc.
455 E. Medical Center Blvd.
Suite 300
Houston, Texas 77598
(281) 671-5150

FibroBiologics, Inc.

Common Stock

June 25, 2024