

Fibrocell Science, Inc.
Form 424B5
July 22, 2015

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Filed pursuant to Rule 424(b)(5)
Registration No.: 333-190649

Prospectus Supplement
(To Prospectus dated August 28, 2013)

2,586,206 Shares

FIBROCELL SCIENCE, INC.

Common Stock

We are offering 2,586,206 shares of our common stock, par value \$0.001 per share, at a public offering price of \$5.80 per share.

Our common stock is listed on The NASDAQ Capital Market under the symbol "FCSC." On July 21, 2015, the last reported sale price of our common stock on The NASDAQ Capital Market was \$5.85 per share.

Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page S-7 of this prospectus supplement and in the other documents that are incorporated by reference in this prospectus supplement and the accompanying prospectus.

Intrexon Corporation (NYSE:XON) ("Intrexon"), our partner on certain of our development programs and an affiliate of Randal J. Kirk, and certain of Mr. Kirk's other affiliates have indicated an interest in purchasing approximately 35% of the shares of common stock being offered in this offering. Affiliates of Mr. Kirk, including Intrexon, collectively own more than 35% of our common stock. However, because indications of interest are not binding agreements or commitments to purchase, these affiliates of Mr. Kirk may determine to purchase fewer shares than they indicate an interest in purchasing or may determine not to purchase any shares in this offering. It is also possible that these affiliates of Mr. Kirk could indicate an interest in purchasing more shares of our common stock. In addition, the underwriters could determine to sell fewer shares to these affiliates of Mr. Kirk than they indicate an interest in purchasing or could determine not to sell any shares to them.

	Per Share(1)	Total
Initial price to public	\$ 5.800	\$ 14,999,995
Underwriting discounts and commissions	\$ 0.348	\$ 900,000
Proceeds, before expenses, to Fibrocell Science, Inc.	\$ 5.452	\$ 14,099,995

(1) We have agreed to reimburse the underwriters for certain expenses in connection with the offering. See "Underwriting."

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The underwriters may also purchase up to an additional 387,930 shares of our common stock from us at the public offering price, less underwriting discounts and commissions, within 30 days of the date of this prospectus supplement. If the underwriters exercise this option in full, the total underwriting discounts and commissions will be \$1,034,999, and our total proceeds before expenses, will be \$16,214,989.

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.

The underwriters expect to deliver the shares of our common stock on or about July 27, 2015.

Wells Fargo Securities

Roth Capital Partners

Griffin Securities

Prospectus dated July 22, 2015.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a "shelf" registration statement on Form S-3 (File No. 333-190649) that we initially filed with the Securities and Exchange Commission, or the SEC, on August 15, 2013, and that was declared effective by the SEC on August 28, 2013. This document is in two parts. The first part is this prospectus supplement which describes the terms of this offering of our common stock and adds to and updates the information contained in the accompanying prospectus. The second part, the accompanying prospectus, provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying prospectus or in any document incorporated by reference into this prospectus supplement that was filed with the SEC before the date of this prospectus supplement, you should rely on the information in this prospectus supplement.

This prospectus supplement and the accompanying prospectus relate to the offering of shares of our common stock. Before buying any of the shares of common stock offered hereby, we urge you to read carefully this prospectus supplement and the accompanying prospectus, together with the information incorporated herein by reference as described below under the section entitled "Incorporation of Certain Information by Reference."

You should rely only on the information contained in, or incorporated by reference into, this prospectus supplement and the accompanying prospectus. We have not, and the underwriters have not, authorized anyone to provide you with different or additional information.

We are not making offers to sell or solicitations to buy our common stock in any jurisdiction in which an offer or solicitation is not authorized or in which the person making that offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make an offer or solicitation. Persons outside the United States who come into possession of this prospectus supplement and accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of our securities and the distribution of this prospectus supplement and accompanying prospectus outside the United States. You should assume that the information in this prospectus supplement and the accompanying prospectus is accurate only as of the date on the front of the respective document and that any information that we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus supplement or the accompanying prospectus or the time of any sale of a security.

This prospectus supplement and the accompanying prospectus contain 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, will be filed or will be incorporated herein by reference as exhibits to the registration statement, and you may obtain copies of those documents as described below under the section entitled "Where You Can Find More Information."

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

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This prospectus supplement and the accompanying prospectus contain and incorporate by reference market data and industry statistics and forecasts that are based on independent industry publications and other publicly-available information. Although we believe these sources are reliable, we do not guarantee the accuracy or completeness of this information and we have not independently verified this information. Although we are not aware of any misstatements regarding the market and industry data presented in this prospectus supplement, accompanying prospectus or the documents incorporated herein by reference, these estimates involve risks and uncertainties and are subject to change based on various factors. Accordingly, investors should not place undue reliance on this information.

Unless the context otherwise requires, in this prospectus supplement the "Company," "Fibrocell," "we," "us," "our" and similar names refer to Fibrocell Science, Inc. and its subsidiaries.

This prospectus supplement and the accompanying prospectus and the information incorporated herein by reference include trademarks, service marks and trade names owned by us or other companies. We have registered or filed applications to register certain trademarks in the United States and abroad, including Fibrocell Science, Fibrocell Therapy, Fibrocell Process and LAVIV®. All other trademarks or trade names referred to in this prospectus are the property of their respective owners.

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PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information about us and this offering and does not contain all of the information that you should consider in making your investment decision. You should carefully read this entire prospectus supplement and the accompanying prospectus, including the risks and uncertainties discussed under the heading "Risk Factors" beginning on page S-7 of this prospectus supplement, and the information incorporated by reference in this prospectus supplement, including our financial statements, before making an investment decision. If you invest in our securities, you are assuming a high degree of risk.

Our Company

We are an autologous cell and gene therapy company focused on developing first-in-class treatments for rare and serious skin and connective tissue diseases with high unmet medical needs. All of our product candidates use our proprietary autologous fibroblast technology. Fibroblasts are the most common cells located in skin and connective tissue and are responsible for synthesizing extracellular matrix proteins that provide cellular structure and support. Our autologous fibroblast technology uses our patented manufacturing process, which involves collecting small skin samples from patients, separating the tissue into its component cells, then expanding the fibroblast cells using classical tissue culture techniques until the numbers are adequate for repeated injection. In this manner, each patient is treated with cells that were grown from his or her own dermal tissue (i.e., autologous).

Our most advanced development program is for use of azficel-T for treatment of chronic dysphonia, a reduction in vocal capacity resulting from vocal cord scarring. We are currently in a Phase II clinical trial for this indication. We expect to complete dosing in our Phase II clinical trial by year-end 2015 and announce efficacy results in the second quarter of 2016. In collaboration with Intrexon, a leader in synthetic biology, we are also in the preclinical development stage with two gene-therapy product candidates, one of which received an orphan drug designation from the FDA. Our lead orphan gene-therapy product candidate, FCX-007, is in late stage preclinical development for the treatment of recessive dystrophic epidermolysis bullosa ("RDEB"), a devastating, rare, congenital, painful, progressive blistering skin disease that typically leads to premature death. We are also in preclinical development of our second gene-therapy product candidate, FCX-013, for the treatment of linear scleroderma, an excess production of extracellular matrix characterized by skin fibrosis and linear scars. We plan to seek orphan drug designation for FCX-013.

Chronic Dysphonia. Dysphonia is a reduction in vocal capacity and is caused by damage to the fibroblast layer of the vocal cords, which limits airflow and results in severe and significant limitations in voice quality, including, in some cases, the loss of voice altogether. Depending on the severity of dysphonia, a patient's resulting voice is hoarse or raspy and is perceived by sufferers as a communication disorder. Severe cases can lead to a total loss of voice. The number of U.S. patients suffering from chronic dysphonia caused by vocal fold scarring is approximately 125,000. No long-term effective therapy is presently available, and rehabilitation of subjects (for example, with voice therapy) is difficult. In our Phase I clinical trial of azficel-T for chronic dysphonia, which involved a feasibility study to determine the safety and efficacy of injections for the treatment of chronic dysphonia in patients who had failed to improve following currently available treatments, a positive trend of sustained improvement was noted in a majority of clinical trial subjects. Our Phase II clinical trial for chronic dysphonia currently in progress is a double-blind, randomized, placebo-controlled trial that is designed to test the safety and efficacy of azficel-T in subjects with chronic dysphonia caused by idiopathic vocal cord scarring or age-related dysphonia. Efficacy endpoints will be assessed four months after administration of final treatment.

RDEB. Recessive dystrophic epidermolysis bullosa is the most severe form of dystrophic epidermolysis bullosa ("DEB"), a congenital, progressive, devastatingly painful and debilitating genetic disorder that often leads to death. RDEB is caused by a mutation of the COL7A1 gene, the gene which

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encodes for type VII collagen ("COL7"), a protein that forms anchoring fibrils. Anchoring fibrils hold together the layers of skin, and without them, skin layers separate causing severe blistering, open wounds and scarring in response to any kind of friction, including normal daily activities like rubbing or scratching. Children who inherit the condition are often called "butterfly children" because their skin is as fragile as a butterfly's wings. There are approximately 1,100 - 2,500 RDEB patients in the United States. Current treatments for RDEB address only the sequelae, including daily bandaging, hydrogel dressings, antibiotics, feeding tubes and surgeries.

FCX-007, our lead gene-therapy product candidate, genetically modifies autologous fibroblast cells to express COL7. We are developing FCX-007 in collaboration with Intrexon. We submitted our investigational new drug ("IND") application for FCX-007 to the FDA on July 17, 2015 and expect to initiate a Phase I/II clinical trial for FCX-007 by the end of 2015. We expect that the primary objective of our Phase I/II trial will be to evaluate the safety of FCX-007. We also expect that the secondary objectives will be to (i) assess the mechanism of action at weeks 4, 12, 25, 52 and unscheduled visits through the evaluation of skin biopsies for COL7 expression and the presence of anchoring fibrils and (ii) assess the efficacy of FCX-007 through an intra-subject paired analysis of target wound area at weeks 4, 8, 12, 25, 52 and unscheduled visits by comparing FCX-007 treated wounds to untreated wounds in Phase I and to wounds administered sterile saline in Phase II through the evaluation of digital imaging of wounds. We aim to enroll nine subjects in this Phase I/II clinical trial (three adults in Phase I followed by six pediatric subjects in Phase II).

Linear scleroderma. Our second gene-therapy product candidate, FCX-013, which is also being developed in collaboration with Intrexon, is for the treatment of linear scleroderma. Linear scleroderma is a localized autoimmune skin disorder that manifests as excess production of extracellular matrix characterized by fibrosis and linear scars. The linear areas of skin thickening may extend to underlying tissue and muscle in children which may impair growth and development. Lesions appearing across joints can be painful, impair motion and may be permanent. Current treatments only address symptoms, including systemic or topical corticosteroids, UVA light therapy and physical therapy. Our product development efforts to date have included gene selection and design, transduction efficiency and protein expression analysis, ligand development for use in connection with Intrexon's proprietary RheoSwitch Therapeutic System® ("RTS®") expression technology and analytical assay design. Research is ongoing to select the optimal gene configuration, optimize RTS® control, develop animal models to establish proof of concept and progress the regulatory path for FCX-013. We expect to complete the proof-of-concept studies in the first half of 2016 and plan to submit our IND application to the FDA in the second half of 2016.

We also have an ongoing scientific research collaboration with the Regents of the University of California, Los Angeles ("UCLA") focusing on discoveries and technologies related to regenerative medicine. The technologies from this collaboration and our exclusive license agreements with UCLA may enable us to expand our biologics platform which uses human fibroblasts to create localized therapies that are compatible with the unique biology of each subject.

We currently market LAVIV® (azficel-T), an FDA-approved biological product that uses our proprietary autologous fibroblast technology, for the improvement of the appearance of moderate to severe nasolabial fold wrinkles in adults. In 2013, we changed our business strategy to focus on rare skin and connective tissue diseases, resulting in our product candidates mentioned above. As a result, we have minimal sales and marketing efforts of our LAVIV aesthetic product line, and we intend to support only a nominal amount of LAVIV aesthetic procedures in 2015 and beyond. Given the limited use of LAVIV we are experiencing difficulties in recruiting a sufficient number of subjects for the postmarketing study that the FDA required as a condition for the approval of LAVIV. We are actively engaged in discussions with the FDA about how to fulfill the requirement in light of the limited patient population given our shift in focus to rare skin and connective tissue diseases.

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Corporate Information

Our corporate headquarters is located at 405 Eagleview Boulevard, Exton, Pennsylvania 19341. Our phone number is (484) 713-6000. Our corporate website is www.fibrocellscience.com. We make available free of charge on our website our annual, quarterly and current reports, including amendments to such reports, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC. Information contained on our website is not incorporated by reference into this prospectus supplement or the accompanying prospectus, and you should not consider information contained on our website as part of this prospectus supplement or the accompanying prospectus.

Recent Developments

IND submission for FCX-007. On July 17, 2015, we submitted an IND application for FCX-007 to the FDA for the treatment of RDEB. We expect to initiate a Phase I/II clinical trial by the end of 2015 to evaluate the safety, mechanism of action and efficacy of FCX-007 for the treatment of RDEB.

Preclinical Data for FCX-007. On July 20, 2015, we reported positive proof-of-concept data from *in vivo* preclinical studies of FCX-007 that showed the following:

the presence of COL7 in the dermal-epidermal junction of the RDEB cultured grafts in RDEB human skin xenograft severe combined immunodeficiency ("SCID") mice; and

no apparent systemic distribution of the vector in normal human skin xenograft SCID mice.

Additionally, on June 8, 2015, we reported positive data from *in vitro* preclinical studies of FCX-007 that showed that FCX-007 cells were successfully produced on the cGMP-scale by expanding lentivirus-collagen type VII-transduced (LV-COL7-transduced) RDEB subject fibroblasts from a biopsy sample. The results also showed:

the integrated transgene copy number per cell was dose-dependent using a replication-defective, self-inactivating (SIN) lentiviral vector;

the COL7 expression from the FCX-007 cells was confirmed by three different analytical methods: qRT-PCR, immunofluorescence staining and ELISA;

the structure of the COL7 expressed by the FCX-007 cells was shown to be predominantly trimeric by immunoprecipitation/SDS-PAGE/Western blot analysis. Naturally-occurring COL7 primarily has this characteristic trimeric structure, which is believed to be integral to the creation of anchoring fibrils of necessary strength; and

the COL7 produced from the FCX-007 cells was demonstrated to be functional by binding to laminin 332 both in an *in vitro* binding assay and by correction of the hypermotility phenotype of RDEB cells in an *in vitro* migration assay. In normal skin, COL7 anchoring fibrils bind to laminin 332, extracellular matrix proteins, and other collagens to mediate attachment of the dermis to the epidermis.

Additionally, preliminary two- and six-week toxicology results using FCX-007 cells in a human skin graft model demonstrated no findings of toxicology in RDEB human skin xenograft SCID mice.

Rare Pediatric Disease Designation for FCX-007. On May 1, 2015, the FDA granted a rare pediatric disease designation for FCX-007 for the treatment of RDEB. The rare pediatric disease designation augments the orphan drug designation previously granted by the FDA for FCX-007 to treat DEB, which includes RDEB. Under the FDA's Rare Pediatric Disease Priority Review Voucher program, upon the approval of

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a qualifying new drug application ("NDA") or biologics license application ("BLA") for the treatment of a rare pediatric disease, the sponsor of such application would be eligible for a Rare Pediatric Disease Priority Review Voucher that can be used to obtain one priority review for a subsequent NDA or BLA. The Priority Review Voucher may be sold or transferred an unlimited number of

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times before the voucher is used, as long as the sponsor making the transfer has not yet submitted the application.

Financial Results. We are currently finalizing our financial results for the second quarter ended June 30, 2015. While complete financial information and operating data are not available, based on information currently available, we estimate that as of June 30, 2015 we had approximately \$26.9 million of cash and cash equivalents. This preliminary estimate has been prepared by, and is the responsibility of, our management. Our independent registered public accounting firm, BDO USA, LLP, has not audited or reviewed, and does not express an opinion with respect to, this estimate. Our actual cash and cash equivalents as of June 30, 2015 may differ from this estimate due to the completion of our closing procedures with respect to the second quarter ended June 30, 2015, final adjustments and other developments that may arise between now and the time the financial results for the quarter are finalized. We expect to complete our closing procedures with respect to the second quarter ended June 30, 2015 after this offering is consummated. Accordingly, our consolidated financial statements as of and for the second quarter ended June 30, 2015 will not be available until after this offering is completed.

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THE OFFERING

Common stock offered by us pursuant to this prospectus supplement	2,586,206 shares.
Option to purchase additional shares	We have granted the underwriters an option for a period of up to 30 days from the date of this prospectus supplement to purchase up to an additional 387,930 shares of our common stock at the public offering price less the underwriting discounts and commissions, to cover over-allotments, if any.
Common stock to be outstanding immediately after this offering	43,499,271 shares (43,887,201 shares assuming the underwriters exercise in full their option to purchase additional shares).
Use of Proceeds	We currently intend to use the net proceeds of this offering for the continued clinical and preclinical development of our product candidates and for other general corporate purposes, which may include working capital, research and development expenditures, the funding of in-licensing agreements for product candidates, additional technologies or other forms of intellectual property, capital expenditures and general and administrative expenses. As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses of the proceeds from this offering. As a result, our management will retain broad discretion in the allocation and use of the net proceeds from this offering. See "Use of Proceeds" on page S-11 of this prospectus supplement.
Risk Factors	An investment in our common stock involves a high degree of risk. See the information contained in or incorporated by reference under "Risk Factors" on page S-7 of this prospectus supplement, page 14 of our Annual Report on Form 10-K for the year ended December 31, 2014 and under similar headings in the other documents that are incorporated by reference herein, as well as the other information included in or incorporated by reference in this prospectus supplement and the accompanying prospectus.
Market for the common stock	Our common stock is quoted and traded on The NASDAQ Capital Market under the symbol "FCSC." The number of shares of our common stock to be outstanding immediately after this offering is based on 40,913,065 shares of common stock outstanding as of June 30, 2015. Unless specifically stated otherwise, the information in this prospectus supplement is as of June 30, 2015 and excludes: 3,236,814 shares of our common stock issuable upon the exercise of stock options outstanding as of June 30, 2015, at a weighted average exercise price of \$6.37 per share, of which options to purchase 1,353,075 shares of our common stock were then exercisable; 6,033,050 shares of our common stock issuable upon the exercise of warrants at a weighted average exercise price of \$7.08 per share; and an aggregate of 2,323,939 shares of our common stock reserved for future grants of stock options (or other similar equity instruments) under the under the Fibrocell Science, Inc. 2009 Equity Incentive Plan (the "Equity Incentive Plan").

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Except as otherwise indicated, all information in this prospectus supplement assumes no exercise by the underwriters of their option to purchase additional shares of common stock.

Intrexon, our partner on certain of our development programs and an affiliate of Randal J. Kirk, and certain of Mr. Kirk's other affiliates have indicated an interest in purchasing approximately 35% of the shares of common stock being offered in this offering. Affiliates of Mr. Kirk, including Intrexon, collectively own more than 35% of our common stock. However, because indications of interest are not binding agreements or commitments to purchase, these affiliates of Mr. Kirk may determine to purchase fewer shares than they indicate an interest in purchasing or may determine not to purchase any shares in this offering. It is also possible that these affiliates of Mr. Kirk could indicate an interest in purchasing more shares of our common stock. In addition, the underwriters could determine to sell fewer shares to these affiliates of Mr. Kirk than they indicate an interest in purchasing or could determine not to sell any shares to them.

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RISK FACTORS

Investing in our common stock involves a high degree of risk. Before investing in our common stock, you should carefully consider the risks described below, together with all of the other information contained in this prospectus supplement and the accompanying prospectus and incorporated by reference herein and therein, including from our most recent Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q. Some of these factors relate principally to our business and the industry in which we operate. Other factors relate principally to your investment in our securities. The risks and uncertainties described therein and below are not the only risks facing us. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also materially and adversely affect our business and operations.

If any of the matters included in the following risks were to occur, our business, financial condition, results of operations, cash flows or prospects could be materially and adversely affected. In such case, you may lose all or part of your investment.

Risks Related to this Offering

The exercise of options and warrants and other issuances of shares of common stock or securities convertible into or exercisable for shares of common stock following this offering will dilute your ownership interests and may adversely affect the future market price of our common stock.

Sales of our common stock in the public market, either by us or by our current stockholders, or the perception that these sales could occur, could cause a decline in the market price of our securities. All of the shares of our common stock held by those of our current stockholders who have not entered into lock-up agreements with the underwriters may be immediately eligible for resale in the open market either in compliance with an exemption under Rule 144 promulgated under the Securities Act of 1933, as amended, or the Securities Act, or pursuant to an effective resale registration statement that we have previously filed with the SEC. Such sales, along with any other market transactions, could adversely affect the market price of our common stock.

In addition, as of June 30, 2015, there were outstanding options to purchase an aggregate of 3,236,814 shares of our common stock at a weighted average exercise price of \$6.37 per share, of which options to purchase 1,353,075 shares of our common stock were then exercisable. As of June 30, 2015, there were warrants outstanding to purchase 6,033,050 shares of our common stock at a weighted average exercise price of \$7.08 per share. The resale of the shares of our common stock issuable upon exercise of these options and warrants held by persons who have not entered into lock-up agreements with the underwriters may be immediately eligible for resale in the open market, either in compliance with an exemption from registration under the Securities Act (because the issuance of the shares was registered with the SEC), or pursuant to an effective resale registration statement that we have previously filed with the SEC. Such sales, along with any other market transactions, could adversely affect the market price of our common stock. Additional dilution may result from the issuance of shares of our common stock in connection with collaborations or manufacturing arrangements or in connection with other financing efforts.

Moreover, if we issue options or warrants to purchase our common stock in the future and those options or warrants are exercised you may experience further dilution. Holders of shares of our common stock have no preemptive rights that entitle them to purchase their pro rata share of any offering of shares of any class or series.

You will suffer immediate and substantial dilution in the securities you purchase.

The public offering price of \$5.80 per share of our common stock is substantially higher than the pro forma net tangible book value per share of our outstanding shares immediately after this offering. As a result, investors purchasing securities in this offering will incur immediate and substantial dilution

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of approximately \$4.91 per share of common stock, or approximately 85% of the public offering price. Accordingly, existing stockholders will benefit disproportionately from this offering. If we raise additional capital through the sale of equity, including convertible securities, your percentage of ownership will be diluted. You may also experience additional dilution if stock options or warrants to purchase our shares are exercised at less than the offering price. As of June 30, 2015, we had 3,236,814 stock options outstanding and 2,323,939 reserved for issuance under our Equity Incentive Plan, and 6,033,050 shares of our common stock for issuance upon exercise of outstanding warrants.

We have broad discretion in the use of the net proceeds of this offering and, despite our efforts, we may use the net proceeds in a manner that does not increase the value of your investment.

We currently intend to use the net proceeds of this offering for the continued clinical and preclinical development of our product candidates and for other general corporate purposes, which may include working capital, research and development expenditures, the funding of in-licensing agreements for product candidates, additional technologies or other forms of intellectual property, capital expenditures and general and administrative expenses. However, we have not determined the specific allocation of the net proceeds among these potential uses. Our management will have broad discretion over the use and investment of the net proceeds of this offering, and, accordingly, investors in this offering will need to rely upon the judgment of our management with respect to the use of proceeds, with only limited information concerning our specific intentions. These proceeds could be applied in ways that do not improve our operating results or increase the value of your investment. Please see the section entitled "Use of Proceeds" on page S-11 of this prospectus supplement for further information.

We have identified the following changes to the risk factors previously disclosed in our Annual Report on Form 10-K for the fiscal year ended December 31, 2014 (the "2014 Annual Report"). The risk factors listed below should be read in conjunction with the risk factors set forth in the 2014 Annual Report.

Risks Related to Clinical Development and Regulatory Approval of Our Product Candidates

The results seen in preclinical testing of our product candidates may not be replicated in humans.

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein discuss the results of preclinical testing of FCX-007 and FCX-013. We may not see positive results when these and any other product candidates undergo future clinical testing in humans. Preclinical studies are not designed to test the efficacy of a product candidate in humans, but rather to:

test short-term safety;

establish biological plausibility;

identify biologically active dose levels;

establish feasibility and reasonable safety of the investigational product's proposed clinical route of administration;

identify physiologic parameters that can guide clinical monitoring; and/or

establish proof of concept, or the feasibility and rationale for use of an investigational product in the targeted patient population.

Success in preclinical studies does not ensure that later studies or any clinical trials will be successful nor does it predict future results. The rate of failure in drug development is quite high, and many companies in the biotechnology and pharmaceutical industries have suffered significant setbacks in advanced clinical trials, even after promising results in preclinical studies and earlier clinical trials. Product candidates may fail to show desired safety and efficacy when used with human subjects. Negative or inconclusive results from any of our ongoing preclinical studies could result in delays, modifications, or abandonment of clinical trials and the termination of our development of a product candidate.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein contain forward-looking statements that involve substantial risks and uncertainties. All statements, other than statements of historical facts, included in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein regarding our strategy, future operations, future financial position, future revenues, projected costs, prospects, plans and objectives of management are forward-looking statements. The words "aim," "anticipate," "believe," "estimate," "expect," "potential," "intend," "may," "plan," "predict," "project," "will," "should," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

The forward-looking statements in this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein include, among other things, statements about:

our expectations related to the use of proceeds, if any, from this offering;

the initiation and timing of a Phase I/II clinical trial to evaluate the safety, mechanism of action and efficacy of FCX-007 for the treatment of RDEB;

the progress and results of our preclinical studies and human clinical trials of our cell and gene-therapy product candidates, including, in particular, those for chronic dysphonia caused by vocal cord scarring, RDEB and linear scleroderma, and such other target indications as we may identify and pursue, whether such studies can be conducted within the timeframe that we expect, whether such studies and trials will yield positive results, or whether additional applications for the commercialization of genetically-modified or non-genetically modified autologous cell therapies can be identified by us and advanced into human clinical trials;

the cost of manufacturing related to our preclinical studies and clinical trials;

our ability to meet requisite regulations or receive regulatory approvals in the United States and in foreign jurisdictions, our ability to retain any regulatory approvals that we may obtain and the absence of adverse regulatory developments in the United States and foreign jurisdictions;

the costs, timing and outcome of regulatory review of our product candidates;

the dependence on our facility in Exton, Pennsylvania for the research, development and manufacturing operations of our cell therapy products, and the potential that such facility is damaged or if we are otherwise required to discontinue research, development and production at such facility;

the dependence on our third party facility in Mountain View, California for the research, development and manufacturing operations of our gene-therapy products, and the potential that such facility is damaged or if we are otherwise required to discontinue research, development and production at such facility;

whether our collaboration with Intrexon can be advanced with positive results within the timeframe and budget that we expect;

our dependence on suppliers for cell and gene-therapy products which are critical to the completion of our cell and gene-therapy applications;

the scope, progress, results and costs of preclinical development, laboratory testing and clinical trials for our cell and gene-therapy applications;

the number and development requirements of other product candidates that we pursue;

the emergence of competing technologies and other adverse market developments;

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the extent to which we acquire or invest in businesses, products and technologies;

our ability to establish collaborations and obtain milestone, royalty or other payments from any such collaborators;

any adverse claims relating to our intellectual property and the costs of preparing, filing and prosecuting patent applications and maintaining, enforcing and defending intellectual property related claims; and

our dependence on physicians to correctly follow our established protocols for the safe and optimal administration of our product.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this prospectus supplement, particularly under "Risk Factors" on page S-7 of this prospectus supplement, the accompanying prospectus and the documents incorporated herein and therein that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures, collaborations or investments we may make.

You should read this prospectus supplement, the accompanying prospectus and the documents that we incorporate by reference herein and therein completely and with the understanding that our actual future results may be materially different from what we expect.

Except as required by law, we undertake no obligation to update or revise any forward-looking statements to reflect new information or future events or developments. You should not assume that our silence over time means that actual events are bearing out as expressed or implied in such forward-looking statements. Before deciding to purchase our securities, you should carefully consider the risk factors discussed and incorporated by reference in this prospectus supplement and the accompanying prospectus and in the registration statement of which this prospectus supplement and the accompanying prospectus form a part.

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USE OF PROCEEDS

We expect to receive net proceeds of approximately \$13.6 million from the sale of 2,586,206 shares of our common stock in this offering, or \$15.7 million if the underwriters exercise in full their option to purchase 387,930 additional shares of common stock, based on a public offering price of \$5.80 per share after deducting the estimated expenses related to this offering and the underwriting discounts and commissions payable by us.

We currently intend to use the net proceeds from the sale of the shares of common stock offered by us hereunder, if any, for the continued clinical and preclinical development of our product candidates and for other general corporate purposes, which may include, without limitation:

working capital;

research and development expenditures;

the funding of in-licensing agreements for product candidates, additional technologies or other forms of intellectual property;

capital expenditures; and

general and administrative expenses.

The amounts and timing of our use of the net proceeds from this offering will depend on a number of factors, such as the timing and progress of our research and development efforts, the timing and progress of any partnering efforts, technological advances and the competitive environment for our product candidates. As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses for the net proceeds to us from the sale of the shares of common stock offered by us hereunder. Accordingly, our management will have broad discretion in the timing and application of these proceeds. Pending application of the net proceeds as described above, we intend to temporarily invest the proceeds in short-term, interest-bearing instruments.

Although it is difficult to predict future liquidity requirements, we believe that the net proceeds from this offering, together with our existing cash resources, will be sufficient to enable us to fund our operations into the fourth quarter of 2016, including the continuation of our preclinical and clinical development of our product candidates. We have based this estimate on assumptions that may prove to be incorrect, and we could use our available capital resources sooner than we currently expect.

Table of Contents**DILUTION**

Purchasers of common stock in this offering will experience immediate dilution to the extent of the difference between the public offering price per share of common stock, and the net tangible book value per share of common stock immediately after this offering.

Our net tangible book value as of June 30, 2015 was approximately \$24.9 million, or \$0.61 per share of common stock. Net tangible book value per share is determined by dividing total tangible assets less total liabilities, by the aggregate number of shares of common stock outstanding as of June 30, 2015. After giving effect to the sale by us of 2,586,206 shares of common stock at the public offering price of \$5.80 per share of common stock and after deducting the underwriting discounts and commissions and estimated offering expenses, our net tangible book value as of June 30, 2015 would have been approximately \$38.5 million, or \$0.89 per share of common stock. This represents an immediate increase in net tangible book value of \$0.28 per share to our existing stockholders and an immediate dilution of \$4.91 per share of common stock issued to the new investors purchasing securities in this offering.

The following table illustrates this per share dilution:

Public offering price per share of common stock	\$	5.80
Net tangible book value per share as of June 30, 2015	\$	0.61
Increase per share attributable to new investors	\$	0.28
Net tangible book value per share after this offering	\$	0.89
Dilution per share to new investors	\$	4.91

If the underwriters exercise their option in full to purchase 387,930 additional shares of common stock in this offering at the public offering price of \$5.80 per share, the net tangible book value per share after the offering would be \$0.92 per share, the increase in the net tangible book value per share to existing stockholders would be \$0.31 per share and the dilution to new investors purchasing securities in this offering would be \$4.88 per share.

The number of shares of our common stock to be outstanding immediately after this offering is based on 40,913,065 shares of common stock outstanding as of June 30, 2015. Unless specifically stated otherwise, the information in this prospectus supplement is as of June 30, 2015 and excludes:

3,236,814 shares of our common stock issuable upon the exercise of stock options outstanding as of June 30, 2015, at a weighted average exercise price of \$6.37 per share, of which options to purchase 1,353,075 shares of our common stock were then exercisable;

6,033,050 shares of our common stock issuable upon the exercise of warrants at a weighted average exercise price of \$7.08 per share; and

an aggregate of 2,323,939 shares of our common stock reserved for future grants of stock options (or other similar equity instruments) under the under the Equity Incentive Plan.

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

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MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following discussion is a summary of the material U.S. federal income tax consequences to Non-U.S. Holders (as defined below) of the purchase, ownership and disposition of our common stock issued pursuant to this offering. This summary is not a complete analysis of all potential tax effects and does not discuss the application of other U.S. federal tax laws, such as estate and gift tax laws, and any applicable state, local or non-U.S. tax laws. This discussion is based on the Internal Revenue Code of 1986, as amended (the "Code"), Treasury Regulations promulgated thereunder, judicial decisions, and published rulings and administrative pronouncements of the U.S. Internal Revenue Service (the "IRS"), in each case as in effect on the date hereof. These authorities may change or be subject to differing interpretations. Any such change or differing interpretation may be applied retroactively in a manner that could adversely affect a Non-U.S. Holder of our common stock. We have not sought and will not seek any rulings from the IRS regarding the matters discussed below. There can be no assurance the IRS or a court will not take a contrary position to that discussed below regarding the tax consequences of the purchase, ownership and disposition of our common stock.

This discussion is limited to Non-U.S. Holders that hold our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all U.S. federal income tax consequences relevant to a Non-U.S. Holder's particular circumstances, including the impact of the Medicare contribution tax on net investment income. In addition, it does not address consequences relevant to Non-U.S. Holders subject to special rules, including, without limitation:

U.S. expatriates and former citizens or long-term residents of the United States;

persons subject to the alternative minimum tax;

persons holding our common stock as part of a hedge, straddle or other risk-reduction strategy or as part of a conversion transaction or other integrated investment;

banks, insurance companies and other financial institutions;

brokers, dealers or traders in securities;

"controlled foreign corporations," "passive foreign investment companies" and corporations that accumulate earnings to avoid U.S. federal income tax;

partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes (and investors therein);

tax-exempt organizations or governmental organizations;

persons deemed to sell our common stock under the constructive sale provisions of the Code;

persons who hold or receive our common stock pursuant to the exercise of any employee stock option or otherwise as compensation; and

tax-qualified retirement plans.

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If an entity treated as a partnership for U.S. federal income tax purposes holds our common stock, the tax treatment of a partner in the partnership will depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Accordingly, partnerships holding our common stock and the partners in such partnerships should consult their tax advisors regarding the U.S. federal income tax consequences to them.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TAX ADVICE. INVESTORS SHOULD CONSULT THEIR TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO THEIR PARTICULAR SITUATIONS AS WELL AS

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ANY TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK ARISING UNDER THE U.S. FEDERAL ESTATE OR GIFT TAX LAWS OR UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION OR UNDER ANY APPLICABLE INCOME TAX TREATY.

Definition of a Non-U.S. Holder

For purposes of this discussion, a "Non-U.S. Holder" is any beneficial owner of our common stock that is neither a "U.S. person" nor an entity treated as a partnership for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following:

an individual who is a citizen or resident of the United States;

a corporation, or other entity treated as a corporation for U.S. federal tax purposes, created or organized under the laws of the United States, any state thereof or the District of Columbia;

an estate, the income of which is subject to U.S. federal income tax regardless of its source; or

a trust that (1) is subject to the primary supervision of a U.S. court and all substantial decisions of which are under the control of one or more "United States persons" (within the meaning of Section 7701(a)(30) of the Code), or (2) has a valid election in effect to be treated as a United States person for U.S. federal income tax purposes.

Distributions

We do not anticipate declaring or paying dividends to holders of 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 not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and first be applied against and reduce a Non-U.S. Holder's adjusted tax basis in its common stock, but not below zero. Any excess will be treated as capital gain and will be treated as described below under " Sale or Other Taxable Disposition."

Subject to the discussion below on effectively connected income and under " Additional Withholding Tax on Payments Made to Foreign Accounts" dividends paid to a Non-U.S. Holder of our common stock will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends or such lower rate specified by an applicable income tax treaty, provided the Non-U.S. Holder furnishes a valid IRS Form W-8BEN or W-8BEN-E (or other applicable documentation) certifying qualification for the lower treaty rate. A Non-U.S. Holder that does not timely furnish the required documentation, but that qualifies for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. Holders should consult their tax advisors regarding their entitlement to benefits under any applicable income tax treaty.

If dividends paid to a Non-U.S. Holder are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such dividends are attributable), the Non-U.S. Holder will be exempt from the U.S. federal withholding tax described above. To claim the exemption, the Non-U.S. Holder must furnish to the applicable withholding agent a valid IRS Form W-8ECI, certifying that the dividends are effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States.

Any such effectively connected dividends will be subject to U.S. federal income tax on a net income basis at the regular graduated rates. A Non-U.S. Holder that is a corporation also may be subject to a branch profits tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty)

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on its effectively connected earnings and profits that are attributable to such dividends, as adjusted for certain items. Non-U.S. Holders should consult their tax advisors regarding any applicable tax treaties that may provide for different rules.

Sale or Other Taxable Disposition

Subject to discussion below under " Additional Withholding Tax on Payments Made to Foreign Accounts," a Non-U.S. Holder will not be subject to U.S. federal income tax on any gain realized upon the sale or other taxable disposition of our common stock unless:

the gain is effectively connected with the Non-U.S. Holder's conduct of a trade or business within the United States (and, if required by an applicable income tax treaty, the Non-U.S. Holder maintains a permanent establishment in the United States to which such gain is attributable);

the Non-U.S. Holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition and certain other requirements are met; or

our common stock constitutes a U.S. real property interest ("USRPI") by reason of our status as a U.S. real property holding corporation ("USRPHC") for U.S. federal income tax purposes.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular graduated rates. A Non-U.S. Holder that is a corporation also may be subject to a branch profits tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty) on its effectively connected earnings and profits that are attributable to such gain, as adjusted for certain items.

Gain described in the second bullet point above will be subject to U.S. federal income tax at a rate of 30% (or such lower rate specified by an applicable income tax treaty), which may be offset by U.S.-source capital losses of the Non-U.S. Holder (even though the individual is not considered a resident of the United States), provided the Non-U.S. Holder has timely filed U.S. federal income tax returns with respect to such losses.

With respect to the third bullet point above, we believe we currently are not, and do not anticipate becoming, a USRPHC. Because the determination of whether we are a USRPHC depends on the fair market value of our USRPIs relative to the fair market value of our non-U.S. real property interests and our other business assets, there can be no assurance we currently are not a USRPHC or will not become one in the future. Even if we are or were to become a USRPHC, gain arising from the sale or other taxable disposition by a Non-U.S. Holder of our common stock will not be subject to U.S. federal income tax if our common stock is "regularly traded," as defined by applicable Treasury Regulations, on an established securities market, and such Non-U.S. Holder owned, actually and constructively, 5% or less of our common stock throughout the shorter of the five-year period ending on the date of the sale or other taxable disposition or the Non-U.S. Holder's holding period.

Non-U.S. Holders should consult their tax advisors regarding applicable income tax treaties that may provide for different rules.

Information Reporting and Backup Withholding

Payments of dividends on our common stock to Non-U.S. Holders will not be subject to backup withholding, provided the holder either certifies its non-U.S. status, such as by furnishing a valid IRS Form W-8BEN, W-8BEN-E or W-8ECI, or otherwise establishes an exemption. However, information returns are required to be filed with the IRS with respect to any dividends on our common stock paid to the Non-U.S. Holder, regardless of whether any tax was actually withheld. Proceeds of the sale or other taxable disposition of our common stock within the United States or conducted through certain U.S.-related brokers generally will not be subject to backup withholding or information reporting, provided

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the applicable withholding agent receives the certification described above, or the holder otherwise establishes an exemption. Proceeds of a disposition of our common stock conducted through a non-U.S. office of a non-U.S. broker that does not have certain enumerated relationships with the U.S. generally will not be subject to backup withholding or information reporting.

Copies of information returns that are filed with the IRS may also be made available under the provisions of an applicable treaty or tax information exchange agreement to the tax authorities of the country in which the Non-U.S. Holder resides or is established.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a Non-U.S. Holder's U.S. federal income tax liability, provided the required information is timely furnished to the IRS.

Additional Withholding Tax on Payments Made to Foreign Accounts

Payments of interest to a non-U.S. holder may be subject to a 30% withholding tax if the non-U.S. holder fails to provide the withholding agent with documentation sufficient to show that it is compliant with Sections 1471 to 1474 of the Code (commonly known as "FATCA"). Generally such documentation is provided on an executed Form W-8BEN-E. If interest is subject to the 30% tax under FATCA, it will not be subject to the 30% tax described above under "Tax Consequences to Non-United States Holders United States Federal Withholding Tax." Starting in 2016, payments of the gross proceeds may also be subject to FATCA withholding absent proof of FATCA compliance.

Table of Contents**UNDERWRITING**

Subject to the terms and conditions set forth in an underwriting agreement, we have agreed to sell to the underwriters named below, and the underwriters, for whom Wells Fargo Securities, LLC is acting as book running manager and representative, have severally agreed to purchase, the respective numbers of shares of common stock appearing opposite their names below:

Underwriter	Number of Shares
Wells Fargo Securities, LLC	1,939,655
Roth Capital Partners, LLC	426,724
Griffin Securities, Inc.	219,827
Total	2,586,206

All of the shares to be purchased by the underwriters will be purchased from us.

The underwriting agreement provides that the obligations of the several underwriters are subject to various conditions, including approval of legal matters by counsel. The shares of common stock are offered by the underwriters, subject to prior sale, when, as and if issued to and accepted by them. The underwriters reserve the right to withdraw, cancel or modify the offer and to reject orders in whole or in part.

The underwriting agreement provides that the underwriters are obligated to purchase all the shares of common stock offered by this prospectus supplement if any are purchased, other than those shares covered by the option to purchase additional shares described below. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the non-defaulting underwriters may be increased or the underwriting agreement may be terminated.

Intrexon, our partner on certain of our development programs and an affiliate of Randal J. Kirk, and certain of Mr. Kirk's other affiliates have indicated an interest in purchasing approximately 35% of the shares of common stock being offered in this offering. Affiliates of Mr. Kirk, including Intrexon, collectively own more than 35% of our common stock. However, because indications of interest are not binding agreements or commitments to purchase, these affiliates of Mr. Kirk may determine to purchase fewer shares than they indicate an interest in purchasing or may determine not to purchase any shares in this offering. It is also possible that these affiliates of Mr. Kirk could indicate an interest in purchasing more shares of our common stock. In addition, the underwriters could determine to sell fewer shares to these affiliates of Mr. Kirk than they indicate an interest in purchasing or could determine not to sell any shares to them.

Option to Purchase Additional Shares

We have granted a 30-day option to the underwriters, to cover over-allotments, if any, to purchase up to a total of 387,930 additional shares of our common stock from us at the public offering price per share less the estimated underwriting discounts and commissions per share, as set forth on the cover page of this prospectus supplement, and less any dividends or distributions declared, paid or payable on the shares that the underwriters have agreed to purchase from us but that are not payable on such additional shares. If the underwriters exercise this option in whole or in part, then the underwriters will be severally committed, subject to the conditions described in the underwriting agreement, to purchase the additional shares of our common stock in proportion to their respective commitments set forth in the prior table.

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Discounts and Commissions

Shares sold by the underwriters to the public will initially be offered at the public offering price set forth on the cover of this prospectus supplement and to certain dealers at that price less a concession of not more than \$0.2088 per share. After the initial offering, the public offering price, concession and reallowance to dealers may be changed.

The following table summarizes the underwriting discounts and commissions and the proceeds, before expenses, payable to us, both on a per share basis and in total, assuming either no exercise or full exercise by the underwriters of their option to purchase additional shares:

	Per Share	Total	
		Without Option	With Option
Public offering price	\$ 5.800	\$ 14,999,995	\$ 17,249,989
Underwriting discounts and commissions	\$ 0.348	\$ 900,000	\$ 1,034,999
Proceeds, before expenses, to us	\$ 5.452	\$ 14,099,995	\$ 16,214,989

We estimate that the expenses of this offering payable by us, not including underwriting discounts and commissions, will be approximately \$0.6 million. We have agreed to reimburse the underwriters for certain of their expenses, in an amount of up to \$150,000, as set forth in the underwriting agreement.

Indemnification of Underwriters

The underwriting agreement provides that we will indemnify the underwriters against specified liabilities, including liabilities under the Securities Act, or contribute to payments that the underwriters may be required to make in respect of those liabilities.

Lock-Up Agreements

We, each of our directors and officers and certain of our stockholders have agreed, subject to specified exceptions, that, without the prior written consent of Wells Fargo Securities, LLC, we and they will not, during the period beginning on and including the date of this prospectus supplement through and including the date that is the 90th day after the date of this prospectus supplement, directly or indirectly:

issue (in the case of us), offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of any shares of our common stock or other capital stock or any securities convertible into or exercisable or exchangeable for our common stock or other capital stock;

in the case of us, file or cause the filing of any registration statement under the Securities Act with respect to any shares of our common stock or other capital stock or any securities convertible into or exercisable or exchangeable for our common stock or other capital stock; or

enter into any swap or other agreement, arrangement, hedge or transaction that transfers to another, in whole or in part, directly or indirectly, any of the economic consequences of ownership of our common stock or other capital stock or any securities convertible into or exercisable or exchangeable for our common stock or other capital stock,

whether any transaction described in any of the foregoing bullet points is to be settled by delivery of our common stock or other capital stock, other securities, in cash or otherwise, or publicly announce an intention to do any of the foregoing. Moreover, if:

during the last 17 days of the lock-up period, we issue an earnings release or material news or a material event relating to us occurs; or

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prior to the expiration of the lock-up period, we announce that we will release earnings results or become aware that material news or a material event relating to us will occur during the 16-day period beginning on the last day of the lock-up period,

the restrictions described in the immediately preceding sentence will continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event, as the case may be, unless Wells Fargo Securities, LLC waives, in writing, that extension.

Wells Fargo Securities, LLC, in its sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time with or without notice. When determining whether or not to release common stock and other securities from lock-up agreements, Wells Fargo Securities, LLC will consider, among other factors, the holder's reasons for requesting the release, the number of shares of common stock and other securities for which the release is being requested and market conditions at the time.

NASDAQ Stock Market Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol "FCSC."

Stabilization

In order to facilitate this offering of our common stock, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the market price of our common stock. Specifically, the underwriters may sell more shares of common stock than they are obligated to purchase under the underwriting agreement, creating a short position. A short sale is covered if the short position is no greater than the number of shares of common stock available for purchase by the underwriters under the option to purchase additional shares. The underwriters may close out a covered short sale by exercising the option to purchase additional shares or purchasing common stock in the open market. In determining the source of common stock to close out a covered short sale, the underwriters may consider, among other things, the market price of common stock compared to the price payable under the option to purchase additional shares. The underwriters may also sell shares of common stock in excess of the option to purchase additional shares, creating a naked short position. The underwriters must close out any naked short position by purchasing shares of common stock in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after the date of pricing of this offering that could adversely affect investors who purchase in this offering.

As an additional means of facilitating this offering, the underwriters may bid for, and purchase, common stock in the open market to stabilize the price of our common stock, so long as stabilizing bids do not exceed a specified maximum. The underwriting syndicate may also reclaim selling concessions allowed to an underwriter or a dealer for distributing common stock in this offering if the underwriting syndicate repurchases previously distributed common stock to cover syndicate short positions or to stabilize the price of the common stock.

The foregoing transactions, if commenced, may raise or maintain the market price of our common stock above independent market levels or prevent or retard a decline in the market price of the common stock.

The foregoing transactions, if commenced, may be effected on the NASDAQ Stock Market or otherwise. Neither we nor any of the underwriters makes any representation that the underwriters will engage in any of these transactions and these transactions, if commenced, may be discontinued at any time without notice. Neither we nor any of the underwriters makes any representation or prediction as to the direction or magnitude of the effect that the transactions described above, if commenced, may have on the market price of our common stock.

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Relationships

The underwriters and their respective affiliates may, from time to time, provide various financial advisory, investment banking, commercial banking and other financial services to us, for which they received or will receive customary fees and expenses. In the ordinary course of their various business activities, the underwriters and certain of their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments of the issuer. The underwriters and certain of their respective affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Sales Outside the United States

No action has been or will be taken in any jurisdiction (except in the United States) that would permit a public offering of the common stock, or the possession, circulation or distribution of this prospectus supplement or any other material relating to us or the common stock in any jurisdiction where action for that purpose is required. Accordingly, the common stock may not be offered or sold, directly or indirectly, and neither of this prospectus supplement nor any other offering material or advertisements in connection with the common stock may be distributed or published, in or from any country or jurisdiction except in compliance with any applicable rules and regulations of any such country or jurisdiction.

Each of the underwriters may arrange to sell common stock offered by this prospectus supplement in certain jurisdictions outside the United States, either directly or through affiliates, where they are permitted to do so. In that regard, Wells Fargo Securities, LLC may arrange to sell shares in certain jurisdictions through an affiliate, Wells Fargo Securities International Limited, or WFSIL. WFSIL is a wholly-owned indirect subsidiary of Wells Fargo & Company and an affiliate of Wells Fargo Securities, LLC. WFSIL is a U.K. incorporated investment firm regulated by the Financial Services Authority. Wells Fargo Securities is the trade name for certain corporate and investment banking services of Wells Fargo & Company and its affiliates, including Wells Fargo Securities, LLC and WFSIL.

European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a "Relevant Member State") an offer to the public of any shares of common stock which are the subject of the offering contemplated by this prospectus supplement (the "Shares") may not be made in that Relevant Member State except that an offer to the public in that Relevant Member State of any Shares may be made at any time under the following exemptions under the Prospectus Directive, if they have been implemented in that Relevant Member State:

- (a) to legal entities which are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;
- (b) to any legal entity which has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than €43,000,000; and (3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts;
- (c) to fewer than 100 natural or legal persons (other than qualified investors as defined in the Prospectus Directive) subject to obtaining the prior consent of the representative of the underwriters; or
- (d) in any other circumstances falling within Article 3(2) of the Prospectus Directive,

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provided that no such offer of Shares shall result in a requirement for the publication by us or any underwriter of a prospectus pursuant to Article 3 of the Prospectus Directive.

For the purposes of this provision, the expression an "offer to the public" in relation to any Shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any Shares to be offered so as to enable an investor to decide to purchase any Shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in the Relevant Member State and the expression "Prospectus Directive" means Directive 2003/71 EC (including the 2010 PD Amending Directive, in the case of Early Implementing Member States) and includes any relevant implementing measure in each Relevant Member State and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

United Kingdom

This prospectus supplement and any other material in relation to the shares described herein is only being distributed to, and is only directed at, persons in the United Kingdom that are qualified investors within the meaning of Article 2(1)(e) of the Prospective Directive ("qualified investors") that also (i) have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended, or the Order, (ii) who fall within Article 49(2)(a) to (d) of the Order or (iii) to whom it may otherwise lawfully be communicated (all such persons together being referred to as "relevant persons"). The shares are only available to, and any invitation, offer or agreement to purchase or otherwise acquire such shares will be engaged in only with, relevant persons. This offering memorandum and its contents are confidential and should not be distributed, published or reproduced (in whole or in part) or disclosed by recipients to any other person in the United Kingdom. Any person in the United Kingdom that is not a relevant person should not act or rely on this prospectus supplement or any of its contents.

The distribution of this prospectus supplement in the United Kingdom to anyone not falling within the above categories is not permitted and may contravene the Financial Services and Markets Act of 2000. No person falling outside those categories should treat this prospectus supplement as constituting a promotion to him, or act on it for any purposes whatever. Recipients of this prospectus supplement are advised that we, the underwriters and any other person that communicates this prospectus supplement are not, as a result solely of communicating this prospectus supplement, acting for or advising them and are not responsible for providing recipients of this prospectus supplement with the protections which would be given to those who are clients of any aforementioned entities that is subject to the Financial Services Authority Rules.

Switzerland

This document does not constitute a prospectus within the meaning of Art. 652a of the Swiss Code of Obligations. The shares of common stock may not be sold directly or indirectly in or into Switzerland except in a manner which will not result in a public offering within the meaning of the Swiss Code of Obligations. Neither this document nor any other offering materials relating to the shares of common stock may be distributed, published or otherwise made available in Switzerland except in a manner which will not constitute a public offer of the shares of common stock in Switzerland.

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LEGAL MATTERS

The validity of the securities we are offering will be passed upon by Pepper Hamilton LLP. In connection with this offering, Goodwin Procter LLP, New York, New York advised the underwriters with respect to certain U.S. securities law matters.

EXPERTS

The consolidated financial statements of Fibrocell Science, Inc. appearing in Fibrocell Science, Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2014, and the effectiveness of Fibrocell Science, Inc.'s internal control over financial reporting as of December 31, 2014, have been audited by BDO USA, LLP, an independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement and the accompanying prospectus are part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and do not contain all the information set forth in the registration statement. Whenever a reference is made in this prospectus supplement and the accompanying prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated herein by reference for a copy of such contract, agreement or other document. Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. You may also read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room.

We make available free of charge on our website our annual, quarterly and current reports, including amendments to such reports, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the U.S. Securities and Exchange Commission. Please note, however, that we have not incorporated any other information by reference from our website, other than the documents listed under the heading "Incorporation of Certain Information by Reference" on page S-23 of this prospectus supplement. In addition, you may request copies of these filings at no cost, by writing or telephoning us at the following address or telephone number:

Office of the Corporate Secretary
Fibrocell Science, Inc.
405 Eagleview Blvd.
Exton, Pennsylvania 19341
(484) 713-6000

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INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" information into this prospectus supplement. This means that we can disclose important information to you by referring you to other documents we have filed separately with the SEC, without actually including the specific information in this prospectus supplement. The information incorporated by reference is considered to be part of this prospectus supplement, and information that we file later with the SEC (and that is deemed to be "filed" with the SEC) will automatically update, and may supersede, information in this prospectus supplement.

Our Annual Report on Form 10-K for the year ended December 31, 2014 filed with the SEC on March 13, 2015;

Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 filed with the SEC on May 8, 2015;

Our Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 30, 2015, to the extent incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2014;

Our Current Reports on Form 8-K filed with the SEC on March 18, 2015, April 21, 2015 (except Item 7.01 and Exhibit 99.1), May 1, 2015, May 12, 2015, June 8, 2015 (except Item 7.01 and Exhibit 99.1), June 24, 2015, July 20, 2015 (except Item 7.01 and Exhibit 99.1) and July 21, 2015; and

The description of our common stock contained in our registration statement on Form 8-A (File No. 001-31564) filed on August 28, 2014, under the Exchange Act, including any amendment or report filed for the purpose of updating such description.

We also incorporate by reference any future filings (except as specifically enumerated above, other than any filings or portions of such reports that are not deemed "filed" under the Exchange Act in accordance with the Exchange Act and applicable SEC rules, including current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items unless such Form 8-K expressly provides to the contrary) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus supplement forms a part, until we file a post-effective amendment that indicates the termination of the offering of the securities made by this prospectus supplement and will become a part of this prospectus supplement from the date that such documents are filed with the SEC. Information in such future filings updates and supplements the information provided in this prospectus supplement. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

To obtain copies of these filings, see "Where You Can Find More Information" on page S-22 of this prospectus supplement.

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PROSPECTUS

\$100,000,000

Fibrocell Science, Inc.

Common Stock

Preferred Stock

Debt Securities

Warrants

Stock Purchase Contracts

Stock Purchase Units

We may from time to time issue up to \$100,000,000 aggregate dollar amount of common stock, preferred stock, debt securities, warrants, stock purchase contracts or stock purchase units. We will specify in the accompanying prospectus supplement the terms of the securities to be offered and sold. We may sell these securities directly to you, through underwriters, dealers or agents we select, or through a combination of these methods. We will describe the plan of distribution for any particular offering of these securities in the applicable prospectus supplement. This prospectus may not be used to sell our securities unless it is accompanied by a prospectus supplement.

Our common stock is listed on NYSE MKT and traded under the symbol "FCSC". On August 2, 2013, the last closing price of the common stock, as reported on the NYSE MKT was \$5.57 per share.

Investing in our securities is highly speculative and involves a high degree of risk. You should purchase these securities only if you can afford a complete loss of your investment. You should carefully consider the risks and uncertainties described under the heading "*Risk Factors*" beginning on page 4 of this prospectus before making a decision to purchase our securities.

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.

The date of this prospectus is August 28, 2013.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, utilizing a "shelf" registration process. Under this shelf registration process, we may sell the securities described in this prospectus in one or more offerings up to a total dollar amount of \$100,000,000.

We have provided to you in this prospectus a general description of the securities we may offer. Each time we sell securities under this shelf registration process, we will provide a prospectus supplement that will contain specific information about the terms of that offering. That prospectus supplement may include additional risk factors or other special considerations applicable to the securities being offered. We may also add, update or change in the prospectus supplement any of the information contained in this prospectus. To the extent there is a conflict between the information contained in this prospectus and the prospectus supplement, you should rely on the information in the prospectus supplement, provided that if a statement in any document is inconsistent with a statement in another document having a later date for example, a document incorporated by reference in this prospectus or any prospectus supplement the statement in the document having the later date modifies or supersedes the earlier statement. You should read both this prospectus and the prospectus supplement together with the additional information described under "Where You Can Find More Information."

The registration statement containing this prospectus, including the exhibits to the registration statement, provides additional information about us and the securities offered under this prospectus. The registration statement, including the exhibits, can be read at the SEC website or at the SEC offices mentioned under the heading "Where You Can Find More Information."

You should rely only on the information incorporated by reference or provided in this prospectus and the accompanying prospectus supplement. We have not authorized anyone to provide you with different information. We are not making an offer to sell or soliciting an offer to buy these securities in any jurisdiction in which the offer or solicitation is not authorized or in which the person making the offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make the offer or solicitation. You should not assume that the information in this prospectus or the accompanying prospectus supplement is accurate as of any date other than the date on the front of the document.

Unless the context requires otherwise, references to the "Company," "Fibrocell," "we," "our," and "us," refer to Fibrocell Science, Inc. and its subsidiaries.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities offered in this offering. We file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission. You may read and copy the registration statement and any other documents we have filed at the Securities and Exchange Commission's Public Reference Room 100 F Street, N.E., Washington, D.C. 20549. Please call the Securities and Exchange Commission at 1-800-SEC-0330 for further information on the Public Reference Room. Our Securities and Exchange Commission filings are also available to the public at the Securities and Exchange Commission's Internet site at www.sec.gov.

This prospectus is part of the registration statement and does not contain all of the information included in the registration statement. Whenever a reference is made in this prospectus to any of our contracts or other documents, the reference may not be complete and, for a copy of the contract or document, you should refer to the exhibits that are a part of the registration statement.

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INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus the information we file with it, which means that we can disclose important information to you by referring you to those documents. Later information filed with the SEC will update and supersede this information.

We incorporate by reference the documents listed below, all filings filed by us pursuant to the Exchange Act after the date of the initial registration statement of which this prospectus forms a part prior to effectiveness of such registration statement, and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the time that all securities covered by this prospectus have been sold or the offering is otherwise terminated; provided, however, that we are not incorporating any information furnished under either Item 2.02 or Item 7.01 of any current report on Form 8-K:

Our Annual Report on Form 10-K for the year ended December 31, 2012 filed on April 1, 2013, and the amendment to our Annual Report on Form 10-K for the year ended December 31, 2012 filed on April 29, 2013.

Our Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, 2013 and June 30, 2013.

Our Definitive Proxy Statement on Schedule 14A filed on May 31, 2013.

Our Current Reports on Form 8-K dated February 21, 2013; March 5, 2013; March 14, 2013; April 29, 2013; June 28, 2013; July 1, 2013, and July 22, 2013.

The description of our common stock contained in our registration statement on Form 8-A filed on May 14, 2013, and any amendment or report filed for the purpose of updating that description.

An updated description of our capital stock is included in this prospectus under "Description of Common Stock" and "Description of Preferred Stock".

We will provide to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request, at no cost to the requester, a copy of any and all of the information that is incorporated by reference in this prospectus. You may request a copy of these filings, at no cost, by contacting us at:

Fibrocell Science, Inc.
Attn: Corporate Secretary
405 Eagleview Boulevard
Exton, Pennsylvania 19341
Phone: (484) 713-6000

ABOUT FIBROCELL

Our Company

We are a cellular aesthetic and therapeutic development stage biotechnology company focused on developing novel skin and tissue rejuvenation products. Our approved and clinical development product candidates are designed to improve the appearance of skin injured by the effects of aging, sun exposure, acne and burn scars with a patient's own, or autologous, fibroblast cells produced by our proprietary Fibrocell process.

We use our proprietary process to harvest autologous fibroblasts from a small skin punch biopsy from behind the ear with the use of a local anesthetic. We chose this location both because of limited exposure to the sun and to avoid creating a visible scar. The biopsy is then packed in a

vial in a special

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shipping container and shipped to our laboratory where the fibroblast cells are released from the biopsy and initiated into our cell culture process where the cells proliferate until they reach the required cell count. The fibroblasts are then harvested, cryopreserved, tested by quality control and released by quality assurance prior to preparation of drug product. After wash and preparation of cells to formulate the drug product, additional quality testing is performed prior to release and distribution to the medical clinic. The number of cells and the frequency of injections may vary and will depend on the indication or application being studied.

Our lead product, LAVIV (United States adopted name, or USAN, is azficel-T), we believe is the first and only personalized aesthetic cell therapy approved by the Food and Drug Administration ("FDA") for the improvement of the appearance of moderate to severe nasolabial fold wrinkles in adults. LAVIV offers patients their own living fibroblast cells in a personalized therapy designed to improve the appearance of wrinkles. Our clinical development programs encompass both aesthetic and therapeutic indications.

We believe that because LAVIV and our product candidates are autologous, the risk of an immunological or allergic response is low. With regard to the therapeutic markets, we believe that our product candidates may address an insufficiently met medical need for the treatment of each of restrictive burn scars, acne scars and vocal scarring. There are also numerous other potential areas of interest for our technology in the body. Certain of our product candidates are still in clinical development and, as such, benefits we expect to see associated with our product candidates may not be validated in our clinical trials. In addition, disadvantages of our product candidates may become known in the future.

Corporate Information

Our corporate headquarters is located at 405 Eagleview Boulevard, Exton, Pennsylvania 19341. Our phone number is (484) 713-6000. Our corporate website is www.fibrocellscience.com. Information contained on our website or any other website does not constitute part of this prospectus.

Recent Developments

On April 30, 2013, we completed a one-for-twenty-five reverse stock split of our shares of common stock. On May 17, 2013, our common stock began trading on the NYSE MKT under the ticker symbol "FCSC". All share amounts and warrant exercise price information included in this prospectus reflect the occurrence of the reverse stock split.

The following tables provide retroactive effect to the reverse stock split for certain of the financial information presented in our Annual Report for the year ended December 31, 2012. The Form 10-Q for the quarters ended March 31, 2013, as filed on May 15, 2013, and June 30, 2013, as filed on August 13, 2013, reflect the 1 for 25 reverse stock split.

Table of Contents**Financial Information Data**

	Year Ended December 31	
	2012	2011
	(in thousands, except per share data)	
As previously reported		
Net loss	\$ (23,170)	\$ (31,350)
Net loss per share basic and diluted	\$ (0.10)	\$ (0.57)
Weighted average shares outstanding basic and diluted	224,127,430	54,857,520
As adjusted for the 1 for 25 reverse stock split effected April 30, 2012		
Net loss	\$ (23,170)	\$ (31,350)
Net loss per share basic and diluted	\$ (2.58)	\$ (14.29)
Weighted average shares outstanding basic and diluted	8,965,098	2,194,301

Securities Being Offered

We may from time to time issue up to \$100,000,000 aggregate dollar amount of common stock, preferred stock, debt securities, warrants, stock purchase contracts or stock purchase units. We will specify in the accompanying prospectus supplement the terms of the securities to be offered and sold. We may sell these securities directly to you, through underwriters, dealers or agents we select, or through a combination of these methods. We will describe the plan of distribution for any particular offering of these securities in the applicable prospectus supplement. This prospectus may not be used to sell our securities unless it is accompanied by a prospectus supplement.

RISK FACTORS

Before making an investment decision, you should consider the "Risk Factors" included under Item 1A of our Annual Report on Form 10-K for the fiscal year ended December 31, 2012 and in our updates to those Risk Factors in our Quarterly Reports on Form 10-Q, all of which are incorporated by reference in this prospectus, as updated by our future filings with the SEC. The market or trading price of our common stock could decline due to any of these risks. In addition, please read "Forward-Looking Statements" in this prospectus, where we describe additional uncertainties associated with our business and the forward-looking statements included or incorporated by reference in this prospectus. Please note that additional risks not currently known to us or that we currently deem immaterial may also impair our business and operations. The accompanying prospectus supplement may contain a discussion of additional risks applicable to an investment in us and the particular type of securities we are offering under that prospectus supplement.

FORWARD-LOOKING STATEMENTS

Some of the information in this prospectus, and the documents we incorporate by reference, contain forward-looking statements within the meaning of the federal securities laws. You should not rely on forward-looking statements in this prospectus, and the documents we incorporate by reference. Forward-looking statements typically are identified by use of terms such as "anticipate," "believe," "plan," "expect," "future," "intend," "may," "will," "should," "estimate," "predict," "potential," "continue," and similar words, although some forward-looking statements are expressed differently. This prospectus, and the documents we incorporate by reference, may also contain forward-looking statements attributed to third parties relating to their estimates regarding the growth of our markets. All forward-looking statements address matters that involve risk and uncertainties, and there are many important risks, uncertainties and other factors that could cause our actual results, as well as those of the markets we serve, levels of activity, performance, achievements and prospects to differ materially

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from the forward-looking statements contained in this prospectus, and the documents we incorporate by reference.

You should also consider carefully the statements under "Risk Factors" and other sections of this prospectus, and the documents we incorporate by reference, which address additional facts that could cause our actual results to differ from those set forth in the forward-looking statements. We caution investors not to place significant reliance on the forward-looking statements contained in this prospectus, and the documents we incorporate by reference. We undertake no obligation to publicly update or review any forward-looking statements, whether as a result of new information, future developments or otherwise.

USE OF PROCEEDS

We expect to use the net proceeds from the sale of securities offered by this prospectus and the prospectus supplement for general corporate purposes. These may include additions to working capital, repayment of existing indebtedness and acquisitions. If we decide to use the net proceeds of any offering of securities other than for general corporate purposes, we will describe the use of the net proceeds in the prospectus supplement for that offering.

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DESCRIPTION OF COMMON STOCK

General

We are currently authorized to issue 100,000,000 shares of common stock, par value \$0.001. As of June 30, 2013, we had 26,235,993 shares of our common stock outstanding. In addition, we had 744,007 shares of common stock underlying outstanding options and 6,108,050 shares of common stock underlying outstanding warrants.

Subject to preferences that may be applicable to any preferred stock outstanding at the time, the holders of our common stock are entitled to receive dividends out of legally available assets at such times and in such amounts as our Board of Directors may from time to time determine. Each stockholder is entitled to one vote for each share of common stock held on all matters submitted to a vote of stockholders. Cumulative voting for the election of directors is not authorized.

Our common stock is not subject to conversion or redemption and holders of our common stock are not entitled to preemptive rights. Upon the liquidation, dissolution or winding up of our company, the remaining assets legally available for distribution to stockholders, after payment of claims or creditors and payment of liquidation preferences, if any, on outstanding preferred stock, are distributable ratably among the holders of our common stock and any participating preferred stock outstanding at that time. Each outstanding share of common stock is fully paid and nonassessable.

Anti-Takeover Effects of Provisions of Delaware Law and our Charter Documents

Provisions of Delaware law and our Certificate of Incorporation, as amended, and Bylaws could make the acquisition of our company through a tender offer, a proxy contest or other means more difficult and could make the removal of incumbent officers and directors more difficult. We expect these provisions to discourage coercive takeover practices and inadequate takeover bids and to encourage persons seeking to acquire control of our company to first negotiate with our Board of Directors. We believe that the benefits provided by our ability to negotiate with the proponent of an unfriendly or unsolicited proposal outweigh the disadvantages of discouraging these proposals. We believe the negotiation of an unfriendly or unsolicited proposal could result in an improvement of its terms.

Our Certificate of Incorporation, as amended, provides for our Board of Directors to be divided into three classes serving staggered terms. Approximately one-third of the Board of Directors will be elected each year. The provision for a classified board could prevent a party who acquires control of a majority of the outstanding voting stock from obtaining control of the Board of Directors until the second annual stockholders' meeting following the date the acquirer obtains the controlling stock interest. The classified board provision could discourage a potential acquirer from making a tender offer or otherwise attempting to obtain control of our company and could increase the likelihood that incumbent directors will retain their positions.

Our Bylaws do not permit stockholders to call a special meeting of stockholders. Our Bylaws provide that special meetings of the stockholders may be called only by a majority of the members of our Board of Directors, our Chairman of the Board of Directors, our Chief Executive Officer or our President. Our Bylaws require that all stockholder actions be taken by a vote of the stockholders at an annual or special meeting, and do not permit our stockholders to act by written consent without a meeting. Our Bylaws provide for an advance notice procedure for stockholder proposals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to the Board of Directors. At an annual meeting, stockholders may only consider proposals or nominations specified in the notice of meeting or brought before the meeting by or at the direction of the Board of Directors. Stockholders may also consider a proposal or nomination by a person who was a stockholder of record on the record date for the meeting, who is entitled to vote at the meeting and

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who has given to our Secretary timely written notice, in proper form, of his, her or its intention to bring that business before the meeting. The Bylaws do not give our Board of Directors the power to approve or disapprove stockholder nominations of candidates or proposals regarding other business to be conducted at a special or annual meeting of the stockholders. However, our Bylaws may have the effect of precluding the conduct of business at a meeting if the proper procedures are not followed. These provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.

Quotation

Our common stock is listed on NYSE MKT and traded under the symbol "FCSC".

Transfer Agent

The transfer agent for our common stock is American Stock Transfer & Trust Company located at 6201 15th Avenue, Brooklyn, New York 11219.

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DESCRIPTION OF PREFERRED STOCK

General

We are currently authorized to issue 5,000,000 shares of preferred stock, par value \$0.001. As of the date of this prospectus, we have no shares of preferred stock outstanding.

Our Board of Directors has the authority, without action by our stockholders, to designate and issue preferred stock in one or more series. Our Board of Directors may also designate the rights, preferences and privileges of each series of preferred stock, any or all of which may be greater than the rights of the common stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock on the rights of holders of the common stock until our Board of Directors determines the specific rights of the holders of the preferred stock. However, these effects might include: (a) restricting dividends on the common stock; (b) diluting the voting power of the common stock; (c) impairing the liquidation rights of the common stock; and (d) delaying or preventing a change in control of our company without further action by our stockholders.

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DESCRIPTION OF DEBT SECURITIES

General

The following description sets forth general terms that will apply to the debt securities. We will describe the particular terms of any debt securities that we offer in the prospectus supplement relating to those debt securities.

The debt securities will be either our senior debt securities or our subordinated debt securities. The senior debt securities will be issued under an indenture between us and the trustee named in the indenture. We refer to this indenture as the "senior indenture." The subordinated debt securities will be issued under a separate Subordinated Indenture between us and the trustee named in the indenture. We refer to this indenture as the "subordinated indenture" and, together with the senior indenture, as the "indentures." Except as permitted by applicable law, the indentures have been or will be qualified under the Trust Indenture Act of 1939.

We have filed the forms of the indentures as exhibits to the registration statement. The following summaries of provisions of the debt securities and the indentures are not complete and are qualified in their entirety by reference to the provisions of the indentures and the debt securities.

Neither of the indentures limits the principal amount of debt securities that we may issue. Each indenture provides that debt securities may be issued in one or more series up to the principal amount that we may authorize from time to time. Each indenture also provides that the debt securities may be denominated in any currency or currency unit that we designate. In addition, each series of debt securities may be reopened in order to issue additional debt securities of that series in the future without the consent of the holders of debt securities of that series. Unless otherwise described in the prospectus supplement relating to a particular offering, neither the indentures nor the debt securities will contain any provisions to afford holders of any debt securities protection in the event of a takeover, recapitalization or similar restructuring of our business.

Unless otherwise described in the prospectus supplement relating to a particular offering, the senior debt securities will rank equally with all of our other unsecured and unsubordinated debt. The subordinated debt securities will be subordinated to the prior payment in full of our senior debt securities. We will describe the particular terms of the subordinated debt securities that we offer in the prospectus supplement relating to those subordinated debt securities.

We will describe the specific terms relating to each particular series of debt securities in the prospectus supplement relating to the offering of those debt securities. The terms we will describe in the prospectus supplement will include some or all of the following:

the title and type of the debt securities;

the total principal amount or initial offering price of the debt securities;

the date or dates when the principal of the debt securities will be payable;

whether we will have the right to extend the stated maturity of the debt securities;

whether the debt securities will bear interest and, if so, the rate or rates, or the method for calculating the rate or rates, of interest;

if the debt securities will bear interest, the date from which interest will accrue, the dates when interest will be payable and the regular record dates for these interest payment dates;

the place where the principal, premium, if any, and interest, if any, on the debt securities will be paid, registered debt securities may be surrendered for registration of transfer, and debt securities may be surrendered for exchange;

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any sinking fund or other provisions that would obligate us to repurchase or otherwise redeem the debt securities;

the terms and conditions upon which we will have the option or the obligation to redeem the debt securities;

the denominations in which any registered debt securities will be issuable;

the identity of each security registrar and paying agent, and the designation of the exchange rate agent, if any, if other than the trustee;

the portion of the principal amount of debt securities that will be payable upon acceleration of the maturity of the debt securities;

the currency used to pay principal, premium, if any, and interest, if any, on the debt securities, if other than U.S. dollars, and whether you or we may elect to have principal, premium and interest paid in a currency other than the currency in which the debt securities are denominated;

any index, formula or other method used to determine the amount of principal, premium or interest on the debt securities;

any changes or additions to the events of default, defaults or our covenants made in the applicable indenture;

whether there are any restrictions relating to the form in which the debt securities are issued;

to whom interest will be payable

if other than the registered holder (for registered debt securities), or

if other than as specified in the indentures (for global debt securities);

whether the debt securities are to be convertible or exchangeable for other securities and, if so, the terms of conversion or exchange;

particular terms of subordination with respect to subordinated debt securities; and

any other terms of the debt securities consistent with the provisions of the applicable indenture.

We may issue debt securities as original issue discount securities to be sold at a substantial discount below their principal amount. If we issue original issue discount securities, then we will describe the material U.S. federal income tax consequences that apply to those debt securities in the applicable prospectus supplement.

Registration and Transfer

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Holders of registered debt securities may present the debt securities for exchange for different authorized amounts of other debt securities of the same series and in the same aggregate principal amount at the corporate trust office of the trustee or at the office of any other transfer agent we may designate for the purpose and describe in the applicable prospectus supplement. The registered securities must be duly endorsed or accompanied by a written instrument of transfer. The agent will not impose a service charge on you for the transfer or exchange. We may, however, require that you pay any applicable tax or other governmental charge.

We may issue debt securities in global form.

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Conversion and Exchange

If any debt securities will be convertible into or exchangeable for our common stock, preferred stock or other securities, the applicable prospectus supplement will set forth the terms and conditions of the conversion or exchange, including:

the conversion price or exchange ratio;

the conversion or exchange period;

whether the conversion or exchange will be mandatory or at the option of the holder or us;

provisions for adjustment of the conversion price or exchange ratio; and

provisions that may affect the conversion or exchange if the debt securities are redeemed.

Redemption

Unless otherwise indicated in the applicable prospectus supplement, we may, at our option, redeem any series of debt securities in whole at any time or in part from time to time. If any series of debt securities are redeemable only on or after a certain date or only upon satisfaction of additional conditions, the applicable prospectus supplement will specify the date or the additional conditions. Unless otherwise specified in the applicable prospectus supplement, the redemption price for debt securities will equal 100% of the principal amount plus any accrued and unpaid interest on those debt securities.

The applicable prospectus supplement will contain the specific terms on which we may redeem a series of debt securities prior to its stated maturity. Unless otherwise described in the prospectus supplement relating to a particular offering, we will send a notice of redemption to holders at least 30 days but not more than 60 days prior to the redemption date. The notice will state:

the redemption date;

the redemption price;

if less than all of the debt securities of the series are being redeemed, the particular debt securities to be redeemed (and the principal amounts, in the case of a partial redemption);

that on the redemption date, the redemption price will become due and payable and any applicable interest will cease to accrue on and after that date;

the place or places of payment;

whether the redemption is for a sinking fund; and

any other provisions required by the terms of the debt securities of the series that are being redeemed.

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On or before any redemption date, we will deposit an amount of money with the trustee or with a paying agent sufficient to pay the redemption price.

Unless otherwise described in the prospectus supplement relating to a particular offering, if we are redeeming less than all the debt securities, the trustee will select the debt securities to be redeemed using a method it considers fair and appropriate. After the redemption date, holders of redeemed debt securities will have no rights with respect to the debt securities except the right to receive the redemption price and any unpaid interest to the redemption date.

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Events of Default

Unless otherwise described in the prospectus supplement relating to a particular offering, an "event of default" regarding any series of debt securities is any one of the following events:

default for 30 days in the payment of any interest installment when due and payable;

default in the making of any sinking fund payment when due;

default in the payment of principal or premium (if any) when due at its stated maturity, by declaration, when called for redemption or otherwise;

default in the performance of any covenant in the debt securities of that series or in the applicable indenture for 60 days after notice to us by the trustee or by the holders of 25% in principal amount of the outstanding debt securities of that series;

certain events of bankruptcy, insolvency and reorganization; and

any other event of default provided with respect to that series of debt securities.

We are required to file every year with each trustee an officers' certificate stating whether any default exists and specifying any default that exists.

Acceleration of Maturity

Unless otherwise described in the prospectus supplement relating to a particular offering, if an event of default has occurred and is continuing with respect to debt securities of a particular series (except, in the case of subordinated debt securities, defaults relating to bankruptcy events), the trustee or the holders of not less than 25% in principal amount of outstanding debt securities of that series may declare the principal amount of outstanding debt securities of that series due and payable immediately.

Unless otherwise described in the prospectus supplement relating to a particular offering, at any time after a declaration of acceleration of maturity with respect to debt securities of any series has been made and before a judgment or decree for payment of the money due has been obtained by the trustee, the holders of a majority in principal amount of the outstanding debt securities of that series by written notice to us and the trustee, may rescind and annul the declaration and its consequences if:

we have paid or deposited with the trustee a sum sufficient to pay:

all overdue interest on all outstanding debt securities of that series and any related coupons,

all unpaid principal of and premium, if any, on any of the debt securities which has become due otherwise than by the declaration of acceleration, and interest on the unpaid principal at the rate or rates prescribed in the debt securities,

to the extent lawful, interest on overdue interest at the rate or rates prescribed in the debt securities, and

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all sums paid or advanced by the trustee and the reasonable compensation, expenses, disbursements and advances of the trustee, its agents and counsel; and

all events of default with respect to debt securities of that series, other than the non-payment of amounts of principal, interest or any premium on the debt securities which have become due solely by the declaration of acceleration, have been cured or waived.

No rescission will affect any subsequent default or impair any right consequent thereon.

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Waiver of Defaults

Unless otherwise described in the prospectus supplement relating to a particular offering, the holders of not less than a majority in principal amount of the outstanding debt securities of any series may, on behalf of the holders of all the debt securities of the series and any related coupons, waive any past default under the applicable indenture with respect to the series and its consequences, except a default:

in the payment of the principal of or premium, if any, or interest on any debt security of the series or any related coupon, or

in respect of a covenant or provision that cannot be modified or amended without the consent of the holder of each outstanding debt security of the series affected thereby.

If an event of default with respect to debt securities of a particular series occurs and is continuing, the trustee will not be obligated to exercise any of its rights or powers under the applicable indenture at the request or direction of any of the holders of debt securities of the series, unless the holders have offered to the trustee reasonable indemnity and security against the costs, expenses and liabilities that might be incurred by it in compliance with the request.

The holders of a majority in principal amount of the outstanding debt securities of any series have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee under the applicable indenture, or exercising any trust or power conferred on the trustee with respect to the debt securities of that series. The trustee may refuse to follow directions in conflict with law or the indenture that may expose the trustee to personal liability or may be unduly prejudicial to the other, non-directing holders. Additionally, the trustee may take any other action the trustee deems proper which is not inconsistent with the direction.

Modification of Indenture

We and the trustee may, without the consent of any holders of debt securities, enter into supplemental indentures for various purposes, including:

to evidence the succession of another entity to us and the assumption by the successor of our covenants and obligations under the debt securities and the indenture;

establishing the form or terms of any series of debt securities issued under the supplemental indentures;

adding to our covenants for the benefit of the holders or to surrender any of our rights or powers under the indenture;

adding additional events of default for the benefit of the holders;

to change or eliminate any provisions of the indenture provided that the change or elimination becomes effective only when there is no debt security outstanding entitled to the benefit of any changed or eliminated provision;

to secure the debt securities;

to cure any ambiguities or correct defective or inconsistent provisions of the indenture, provided that holders of debt securities are not materially affected by the change;

to evidence and provide for acceptance of a successor trustee; and

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to comply with the requirements of the Trust Indenture Act.

We and the trustee may, with the consent of the holders of not less than a majority in principal amount of the outstanding debt securities of all affected series acting as one class, execute

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supplemental indentures adding any provisions to or changing or eliminating any of the provisions of the indenture or modifying the rights of the holders of the debt securities of the series. Without the consent of the holders of all the outstanding debt securities affected thereby, no supplemental indenture may:

change the stated maturity of the principal of, or any installment of principal of or interest on, any debt security;

reduce the principal amount of, the rate of interest on or any premium payable upon the redemption of, or change the manner of calculating the rate of interest on, any debt security;

reduce the amount of the principal of any original issue discount security that would be due and payable upon acceleration of the maturity of the debt security;

change the place of payment where, or the currency in which, principal or interest on any debt security is payable;

impair the right to institute suit for enforcement of payments;

reduce the percentage in principal amount of the outstanding debt securities of any series, the holders of which must consent to a supplemental indenture or any waiver of compliance with various provisions of, or defaults and covenants under, the indenture; or

modify any of the provisions described in this section.

Consolidation, Merger and Sale of Assets

Unless otherwise described in the prospectus supplement relating to a particular offering, as provided in the indentures, we may not consolidate with or merge into any other person, or convey, transfer or lease all or substantially all of our assets to any other person, unless:

the person surviving or formed by the transaction is organized and validly existing under the laws of any United States jurisdiction and expressly assumes our obligations under the debt securities and the indentures;

immediately after giving effect to the transaction, no event of default will have occurred and be continuing under the indentures; and

the trustees under the indentures receive certain officers' certificates and opinions of counsel.

Satisfaction and Discharge

We may terminate our obligations with respect to debt securities of any series not previously delivered to the trustee for cancellation when those debt securities:

have become due and payable;

will become due and payable at their stated maturity within one year; or

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are to be called for redemption within one year under arrangements satisfactory to the indenture trustee for giving notice of redemption.

We may terminate our obligations with respect to the debt securities of a series by depositing with the trustee, as trust funds in trust dedicated solely for that purpose, an amount sufficient to pay and discharge the entire indebtedness on the debt securities of that series. In that case, the applicable indenture will cease to be of further effect, and our obligations will be satisfied and discharged with respect to that series (except our obligations to pay all other amounts due under the indenture and to provide certain officers' certificates and opinions of counsel to the trustee). At our expense, the trustee will execute proper instruments acknowledging the satisfaction and discharge.

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The Trustees

Any trustee may be deemed to have a conflicting interest for purposes of the Trust Indenture Act and may be required to resign as trustee if there is an event of default under the applicable indenture and, as more fully described in Section 310(b) of the Trust Indenture Act, one or more of the following occurs:

the trustee is a trustee under another indenture under which our securities are outstanding;

the trustee is a trustee for more than one outstanding series of debt securities under a single indenture;

we or our affiliates or underwriters hold certain threshold ownership beneficial ownership interest in the trustee;

the trustee holds certain threshold beneficial ownership interests in us or in securities of ours that are in default;

the trustee is one of our creditors; or

the trustee or one of its affiliates acts as an underwriter or agent for us.

We may appoint an alternative trustee for any series of debt securities. The appointment of an alternative trustee would be described in the applicable prospectus supplement.

We and our affiliates engage in transactions with the trustee and its affiliates in the ordinary course of business.

Governing Law

Each of the indentures are, and the related senior debt securities and subordinated debt securities will be, governed by and construed under the internal laws of the State of New York.

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DESCRIPTION OF THE WARRANTS

We may issue warrants to purchase debt securities, preferred stock or common stock. We may offer warrants separately or together with one or more additional warrants, debt securities, shares of preferred stock or common stock, or any combination of those securities in the form of units, as described in the applicable prospectus supplement. If we issue warrants as part of a unit, the prospectus supplement will specify whether those warrants may be separated from the other securities in the unit prior to the warrants' expiration date. We may issue the warrants under warrant agreements to be entered into between us and a bank or trust company, as warrant agent, all as described in the prospectus supplement. If we issue the warrants under warrant agreements, the warrant agent will act solely as our agent in connection with the warrants and will not assume any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants.

We will describe the particular terms of any warrants that we offer in the prospectus supplement relating to those warrants. Those terms may include the following:

the specific designation and aggregate number of warrants, and the price at which we will issue the warrants;

the currency or currency units in which the offering price, if any, and the exercise price are payable;

the date on which the right to exercise the warrants will begin and the date on which the right will expire or, if the warrants are not continuously exercisable throughout that period, the specific date or dates on which they are exercisable;

whether the warrants will be issued in fully registered form or bearer form, in definitive or global form or in any combination of these forms;

any applicable material United States federal income tax considerations;

the identity of the warrant agent, if any, for the warrants and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;

the designation, aggregate principal amount, currency, denomination and terms of any debt securities that may be purchased upon exercise of the warrants;

the designation, amount, currency, denominations and terms of any preferred stock or common stock purchasable upon exercise of the warrants;

if applicable, the designation and terms of the debt securities, preferred stock or common stock with which the warrants are issued and the number of warrants issued with each security;

if applicable, the date from and after which the warrants and the related debt securities, preferred stock or common stock will be separately transferable;

the principal amount of debt securities or the number of shares of preferred stock or common stock purchasable upon exercise of any warrant and the price at which those shares may be purchased;

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provisions for changes to or adjustments in the exercise price;

if applicable, the minimum or maximum number of warrants that may be exercised at any one time;

information with respect to any book-entry procedures;

any antidilution provision of the warrants;

any redemption or call provisions; and

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any additional terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

Our Outstanding Warrants

Series A Private Offering Warrants

Pursuant to the agreement in which we issued our Series A preferred stock in October 2009, we issued Class A warrants, Class B warrants and placement agent warrants. Each of the warrants is exercisable upon issuance and has a five-year term. As of the date hereof, the number of shares underlying the Class A, Class B and placement agent warrants is 115,440, 130,004 and 15,080, respectively and the exercise price is \$6.25 per share.

March 2010 Private Offering Warrants

We entered a securities purchase agreement dated March 2, 2010 with certain accredited investors pursuant to which we agreed to sell in the aggregate 203,075 shares of our common stock. In addition to the common stock purchased, each investor received a warrant to purchase the same number of shares of common stock acquired in the offering. Each of the warrants was exercisable immediately and has a five-year term. The warrants may be exercised on a cash-less basis and are non-redeemable.

If we enter into a fundamental transaction (which term is defined in the warrants), then at the warrant holder's option, exercisable at any time concurrently with, or within 30 days after, the announcement of a fundamental transaction, we must redeem all or any portion of the warrant from the holder by paying to the holder an amount of cash equal to the Black Scholes value of the remaining unexercised portion of this warrant on or prior to the date of the consummation of such fundamental transaction. Any cash payments to be made pursuant to the preceding sentence shall have priority to payments to holders of common stock in connection with a fundamental transaction. The assumptions to be used in calculating the Black Scholes value are set forth in Schedule 1 to the warrant. As of the date hereof, the number of shares underlying the warrants and placement agent warrants is 363,260 and 30,156 respectively and the exercise price is \$6.25 per share.

Series B Private Offering Warrants

We entered securities purchase agreements with certain accredited investors pursuant to which we issued Series B preferred stock and warrants. Each of the warrants was exercisable immediately and has a five-year term. The warrants are non-redeemable. As of the date hereof, the number of shares underlying the warrants and placement agent warrants is 735,758 and 34,340 respectively and the exercise price is from \$2.50 to \$6.25 per share.

Series D Private Offering Warrants

In connection with our Series D offering, we issued Series D preferred stock and warrants. Each of the warrants is exercisable upon issuance and expires on the fifth anniversary of issuance. As of the date hereof, the number of shares underlying the warrants and placement agent warrants is 1,133,040 and 99,576 respectively and the exercise price is from \$2.50 to \$6.25 per share.

August 2011 Private Offering Warrants

We entered into a securities purchase agreement dated August 3, 2011 with certain accredited investors pursuant to which we agreed to sell in the aggregate 1,616,408 shares of our common stock. In addition to the common stock purchased, each investor received a warrant to purchase 0.35 shares of common stock for every share acquired in the offering at an initial exercise price of \$18.75 per share. Each of the warrants was exercisable immediately and has a five-year term. The warrants are

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callable by us provided the (i) volume weighted average price for the common stock for each of 20 consecutive trading days commencing after the effective date of the registration statement exceeds \$43.75 (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and the like) and (ii) the warrant holder is not in possession of any information that constitutes, or might constitute, material non-public information which was provided by us. As of the date hereof, the number of shares underlying the warrants and placement agent warrants is 565,759 at an exercise price of \$18.75 per share and 50,123 at an exercise price of \$13.64 per share, respectively.

Series E Private Offering Warrants

In connection with our Series E offering, we issued warrants to purchase 1,462,560 shares of our common stock at an exercise price of \$7.50 per share, expiring five years from the initial exercise date of the warrants. The initial exercise date of the warrants is September 13, 2012, which is the date on which we received approval from our shareholders to file an amendment to our Certificate of Incorporation increasing the number of our authorized shares of common stock to an amount greater than 250,000,000 shares. As of the date hereof, the number of shares underlying the warrants is 1,462,560 and the exercise price is \$7.50. The number of shares underlying the placement agent warrants is 226,263 and the exercise price is from \$2.50 to \$6.25, per share.

We may redeem the warrants on 30 days' notice if, among other conditions (i) the volume weighted average price of our common stock for each of 20 consecutive trading days exceeds 200% of the then exercise price; and (ii) a current resale registration statement is available to sell all of the shares underlying the warrant.

If we combine, reclassify our outstanding shares of common stock into a smaller number of shares, or subdivide our outstanding shares of common stock into a greater number of shares, then the number of shares of common stock issuable upon the exercise of the warrants and the exercise price then in effect shall be adjusted by us so that the holder of the warrant thereafter exercising his, her or its warrants shall be entitled to receive the number of shares of common stock which the holder of the warrant would have received if the warrant had been exercised immediately prior to such event upon payment of the exercise price that has been adjusted to reflect a fair allocation of the economics of such event to the holder of the warrant.

In the event of any reorganization or recapitalization or in the event we consolidate with or merge into or with another entity or transfer all or substantially all of our assets to another entity, then in lieu of the shares of common stock purchasable upon the exercise of the warrants, on exercise of the warrant, the holder shall be entitled to receive the stock or other securities or property to which the warrant holder would have been entitled upon such consummation as if the warrant holder had exercised his, her, or its warrant immediately prior thereto.

Modification of Above Warrants

Effective upon the completion of a private offering we completed in October 2012, we entered into warrant modification agreements with the holders of warrants to purchase 4,209,353 shares of common stock at exercise prices of between \$6.25 per share and \$7.50 per share pursuant to which the parties agreed, among other items: (a) to extend the expiration date of the warrants by one year; and (b) to delete the full-ratchet anti-dilution adjustment provisions contained in the warrants. As such, the exercise price and number of shares underlying the foregoing warrants were not modified due to the completion of the offering.

Debt Warrants

On October 5, 2012, we entered into an Amendment and Conversion Agreement (the "Debt Agreement") with the holders of our 12.5% Convertible Notes in the aggregate original principal

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amount of approximately \$3.5 million (the "Notes"). Pursuant to the Debt Agreement, we and the Note holders agreed to modify the warrants to purchase an aggregate of 562,790 shares of common stock previously issued in connection with the issuance of the Notes (the "Debt Warrants"): (a) to change the exercise price of the Debt Warrants from \$7.50 to \$2.50 per share; (b) to increase the number of shares of common stock underlying the Debt Warrants by two times the current number of shares rather than three times the current number; (c) to extend the expiration date of the Debt Warrants by one year to June 1, 2018; and (d) to delete the full-ratchet anti-dilution adjustment provisions contained in the Debt Warrants. As of the date hereof, the number of shares underlying the warrants is 1,125,578 at an exercise price of \$2.50 per share.

Pursuant to the Debt Agreement, we and the Note holders agreed, among other items, to modify the warrants to purchase an aggregate of 310,837 shares of common stock previously issued to the Note holders (and their affiliates) in prior financings (the "Prior Warrants"): (a) to extend the expiration date of the Prior Warrants by one year; and (b) to delete the full-ratchet anti-dilution adjustment provisions contained in the Prior Warrants.

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DESCRIPTION OF THE STOCK PURCHASE CONTRACTS AND STOCK PURCHASE UNITS

We may issue stock purchase contracts, including contracts obligating holders to purchase from or sell to us, and us to sell to or purchase from the holders, a specified number of shares of our common stock or preferred stock at a future date or dates. The price per share of common stock or preferred stock and the number of shares of each may be fixed at the time the stock purchase contracts are issued or may be determined by reference to a specific formula set forth in the stock purchase contracts. The stock purchase contracts may be issued separately or as part of units that we call "stock purchase units." Stock purchase units consist of a stock purchase contract and beneficial interests in debt securities or debt obligations of third parties, including U.S. treasury securities.

The beneficial interests comprising a part of a stock purchase unit may secure the holders' obligations to purchase or sell the common stock or preferred stock under the stock purchase contracts.

The stock purchase contracts may require us to make periodic payments to the holders of the stock purchase contracts or for the holders to make periodic payments to us. These payments may be unsecured or prefunded on some basis. The stock purchase contracts may require holders to secure their obligations under those contracts in a specified manner.

If we issue stock purchase contracts or stock purchase units, the applicable prospectus supplement will describe the terms of the stock purchase contracts or stock purchase units, including:

the designation and terms of the stock purchase contracts and, if applicable, the stock purchase units of which they are a part, including whether and under what circumstances the securities forming a stock purchase unit may be held or transferred separately;

whether the stock purchase contracts obligate the holder to purchase or sell, or both purchase and sell, our common stock or preferred stock, and the nature and amount of those securities, or the method of determining those amounts;

the method and terms of settlement of the stock purchase contracts;

any collateral or depositary arrangements, if applicable; and

any material U.S. federal income tax considerations.

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PLAN OF DISTRIBUTION

We may sell the securities covered by this prospectus in one or more of the following ways from time to time:

to or through underwriters or dealers for resale to the purchasers;

directly to purchasers;

through agents or dealers to the purchasers; or

through a combination of any of these methods of sale.

In addition, we may enter into derivative or other hedging transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. The applicable prospectus supplement may indicate that third parties may sell securities covered by this prospectus and the prospectus supplement, including in short sale transactions, in connection with those derivatives. If so, the third party may use securities we pledge or that are borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in those sale transactions will be an underwriter and, if applicable, will be identified in the prospectus supplement (or a post-effective amendment thereto).

A prospectus supplement with respect to each series of securities will include, to the extent applicable:

the terms of the offering;

the name or names of any underwriters, dealers, remarketing firms, or agents and the terms of any agreement with those parties, including the compensation, fees, or commissions received by, and the amount of securities underwritten, purchased, or remarketed by, each of them, if any;

the public offering price or purchase price of the securities and an estimate of the net proceeds to be received by us from any such sale, as applicable;

any underwriting discounts or agency fees and other items constituting underwriters' or agents' compensation;

the anticipated delivery date of the securities, including any delayed delivery arrangements, and any commissions we may pay for solicitation of any such delayed delivery contracts;

that the securities are being solicited and offered directly to institutional investors or others;

any discounts or concessions to be allowed or reallocated or to be paid to agents or dealers; and

any securities exchange on which the securities may be listed.

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Any offer and sale of the securities described in this prospectus by us, any underwriters, or other third parties described above may be effected from time to time in one or more transactions, including, without limitation, privately negotiated transactions, either:

at a fixed public offering price or prices, which may be changed;

at market prices prevailing at the time of sale;

at prices related to prevailing market prices at the time of sale; or

at negotiated prices.

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Offerings of securities covered by this prospectus also may be made into an existing trading market for those securities in transactions at other than a fixed price, either:

on or through the facilities of the NYSE MKT or any other securities exchange or quotation or trading service on which those securities may be listed, quoted, or traded at the time of sale; and/or

to or through a market maker otherwise than on the NYSE MKT or those other securities exchanges or quotation or trading services.

Those at-the-market offerings, if any, will be conducted by underwriters acting as our principal or agent, who may also be third-party sellers of securities as described above.

In addition, we may sell some or all of the securities covered by this prospectus through:

purchases by a dealer, as principal, who may then resell those securities to the public for its account at varying prices determined by the dealer at the time of resale or at a fixed price agreed to with us at the time of sale;

block trades in which a dealer will attempt to sell as agent, but may position or resell a portion of the block as principal in order to facilitate the transaction; and/or

ordinary brokerage transactions and transactions in which a broker-dealer solicits purchasers.

Any dealer may be deemed to be an underwriter, as that term is defined in the Securities Act of 1933 of the securities so offered and sold.

In connection with offerings made through underwriters or agents, we may enter into agreements with those underwriters or agents pursuant to which we receive our outstanding securities in consideration for the securities being offered to the public for cash. In connection with these arrangements, the underwriters or agents also may sell securities covered by this prospectus to hedge their positions in any such outstanding securities, including in short sale transactions. If so, the underwriters or agents may use the securities received from us under those arrangements to close out any related open borrowings of securities.

We may loan or pledge securities to a financial institution or other third party that in turn may sell the loaned securities or, in any event of default in the case of a pledge, sell the pledged securities using this prospectus and the applicable prospectus supplement. That financial institution or third party may transfer its short position to investors in our securities or in connection with a simultaneous offering of other securities covered by this prospectus.

We may solicit offers to purchase the securities covered by this prospectus directly from, and we may make sales of such securities directly to, institutional investors or others, who may be deemed to be underwriters within the meaning of the Securities Act with respect to any resale of such securities.

The securities may also be offered and sold, if so indicated in a prospectus supplement, in connection with a remarketing upon their purchase, in accordance with a redemption or repayment pursuant to their terms, or otherwise, by one or more remarketing firms acting as principals for their own accounts or as agents for us.

If indicated in the applicable prospectus supplement, we may sell the securities through agents from time to time. We generally expect that any agent will be acting on a "best efforts" basis for the period of its appointment.

As one of the means of direct issuance of securities, we may utilize the service of an entity through which we may conduct an electronic "dutch auction" or similar offering of the offered securities among potential purchasers who are eligible to participate in the auction or offering of such offered securities, if so described in the applicable prospectus supplement.

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We may authorize underwriters, dealers, or agents to solicit offers by certain purchasers to purchase the securities from us at the public offering price set forth in the applicable prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. The delayed delivery contracts will be subject only to those conditions set forth in the applicable prospectus supplement.

If underwriters are used in any sale of any securities, the securities may be either offered to the public through underwriting syndicates represented by managing underwriters, or directly by underwriters. Unless otherwise stated in a prospectus supplement, the obligations of the underwriters to purchase any securities will be conditioned on customary closing conditions, and the underwriters will be obligated to purchase all of that series of securities if any are purchased.

Underwriters, dealers, agents, and remarketing firms may at the time of any offering of securities be entitled under agreements entered into with us to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments that the underwriters, dealers, agents, and remarketing firms may be required to make. Underwriters, dealers, agents, and remarketing agents may be customers of, engage in transactions with, or perform services in the ordinary course of business for us and/or our affiliates.

Each series of securities will be a new issue of securities and will have no established trading market. The securities sold pursuant to this prospectus may or may not be listed on a national securities exchange or foreign securities exchange. No assurance can be given as to the liquidity or activity of any trading in the offered securities.

Any underwriters to whom securities covered by this prospectus are sold by us for public offering and sale, if any, may make a market in the securities, but those underwriters will not be obligated to do so and may discontinue any market making at any time without notice.

In compliance with the guidelines of the Financial Industry Regulatory Authority, or FINRA, the aggregate maximum discount, commission, agency fees, or other items constituting underwriting compensation to be received by any FINRA member or independent broker-dealer will not exceed 8% of any offering pursuant to this prospectus and any applicable prospectus supplement.

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LEGAL MATTERS

Schiff Hardin LLP, Washington, DC, will pass upon the validity of the securities offered by this prospectus for us. Legal matters will be passed upon for any underwriters, dealers or agents by counsel named in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of Fibrocell as of December 31, 2012 and 2011, and for each of the two years ended December 31, 2012 incorporated by reference in this prospectus have been so incorporated in reliance on the report of BDO USA, LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

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2,586,206 Shares

FIBROCELL SCIENCE, INC.

Common Stock

PROSPECTUS SUPPLEMENT

July 22, 2015

Wells Fargo Securities

Roth Capital Partners

Griffin Securities
