

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM S-3

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

DISCOVERY LABORATORIES, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or Other Jurisdiction of Incorporation)

94-3171943
(I.R.S. Employer Identification Number)

2600 Kelly Road, Suite 100
Warrington, Pennsylvania 18976-3622
(Address, Including Zip Code and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Mary B. Templeton, Esq.
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(215) 488-9300

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Copies to:

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New York, New York 10020
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Approximate date of commencement of proposed sale to public: From time to time or at one time after this registration statement becomes effective in light of market conditions and other factors.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. o

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 (the "Securities Act"), other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. x

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

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

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Securities Exchange Act of 1934 (the "Exchange Act").

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price per Share(2)	Proposed Maximum Aggregate Offering Price(2)	Amount of Registration Fee(1)(2)
Common Stock, par value \$.001 per share	2,340,000	\$ 2.23	\$ 5,218,200	\$ 712

(1) Includes shares of common stock issuable upon the exercise of warrants. Pursuant to Rule 416(a) under the Securities Act, this registration statement also includes such additional shares as may hereafter be offered or issued to prevent dilution resulting from stock splits, stock dividends, recapitalizations or similar transactions.

(2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) promulgated under the Securities Act of 1933, as amended, by taking the average of the high and low sales price of the common stock on The NASDAQ Capital Market® on April 8, 2013.

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

[SIDE LEGEND] The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where an offer or sale is not permitted.

PROSPECTUS

2,340,000 Shares



Common Stock

This prospectus relates to the resale of up to 2,340,000 shares of our common stock that we may issue to Deerfield Private Design Fund II, L.P., Deerfield Private Design International II, L.P., Deerfield Special Situations Fund, L.P. and Deerfield Special Situations International Master Fund, L.P. (collectively, the “Deerfield Entities” and each a “Deerfield Entity”) upon the exercise of certain warrants we issued to the Deerfield Entities on February 13, 2013 (the “Warrants”). We are not selling any securities under this prospectus and will not receive any of the proceeds from the sale of shares by the selling stockholders.

The selling stockholders may sell the shares of common stock described in this prospectus in a number of different ways and at varying prices. We provide more information about how the selling stockholders may sell its shares of common stock in the section titled “Plan of Distribution” on page 14. We will not be paying any underwriting discounts or commissions in this offering. We will pay the expenses incurred in registering the shares, including legal and accounting fees.

Our common stock is quoted on The NASDAQ Capital Market under the symbol “DSCO.” The last reported sale price for our common stock on April 8, 2013 was \$2.21 per share.

Investing in our common stock involves significant risks. See “Risk Factors” beginning on page 8.

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 _____, 2013.

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This prospectus is part of a registration statement we filed with the Securities and Exchange Commission. You should rely only on the information we have provided or incorporated by reference in this prospectus or any prospectus supplement. We have not authorized anyone to provide you with additional or different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front of the prospectus.

ABOUT THIS PROSPECTUS

You should rely only on the information contained or incorporated by reference in this prospectus and any applicable prospectus supplements. Neither Discovery Laboratories, Inc. nor the selling stockholders have authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. The Company is not making any offer to sell these securities and the selling stockholders are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus is accurate only as of the date on the cover page and that information contained in any document incorporated by reference in this prospectus is only accurate as of the date of the document incorporated by reference. Our business, financial condition, results of operations and prospects may have subsequently changed.

PROSPECTUS SUMMARY

The following summary highlights information contained in this prospectus or incorporated by reference. While we have included what we believe to be the most important information about us and this offering, the following summary may not contain all the information that may be important to you. For a complete understanding of our business and this offering, you should read this entire prospectus carefully, including the risks of investing discussed under “Risk Factors” beginning on page 10, and the information to which we refer you and the information incorporated into this prospectus by reference. Unless the context requires otherwise, in this prospectus the terms “Discovery,” the “Company” “we,” “us” and “our” refer to Discovery Laboratories, Inc., a Delaware corporation, and its consolidated subsidiary. References to “selling stockholders” refers to the stockholders listed herein under the heading “Selling Stockholders” on page 12, who may sell shares from time to time as described in this prospectus.

Our Business

Discovery Laboratories, Inc. is a specialty biotechnology company focused on creating life-saving products for critical care patients with respiratory disease and improving the standard of care in pulmonary medicine. Our proprietary drug technology produces a synthetic, peptide-containing surfactant (KL4 surfactant) that is structurally similar to pulmonary surfactant, a substance produced naturally in the lung and essential for normal respiratory function and survival. We are developing our KL4 surfactant in liquid, lyophilized and aerosolized dosage forms. We are also developing drug delivery technologies with the potential to more efficiently deliver inhaled therapies, including our aerosolized KL4 surfactant. We believe that our proprietary technologies make it possible, for the first time, to develop a significant pipeline of products to address a variety of respiratory diseases for which there frequently are few or no approved therapies.

Our initial strategy is to focus on the development of our KL4 surfactant and aerosol technologies to improve the management of respiratory distress syndrome (RDS) in premature infants. RDS is a serious respiratory condition caused by insufficient surfactant production in underdeveloped lungs of premature infants, and the most prevalent respiratory disease in the Neonatal Intensive Care Unit (NICU). RDS can result in long-term respiratory problems, developmental delay and death. Mortality and morbidity rates associated with RDS have not meaningfully improved over the last decade. We believe that the RDS market is presently underserved, and that our RDS programs have the potential to greatly improve the management of RDS and, collectively over time, to become the global standard of care for premature infants with RDS.

In March 2012, the U.S. Food and Drug Administration (FDA) granted us marketing approval for SURFAXIN[®] (lucinactant) for the prevention of RDS in premature infants at high risk for RDS. SURFAXIN is the first synthetic, peptide-containing surfactant approved for use in neonatal medicine and provides healthcare practitioners with an alternative to the animal-derived surfactants that today are the standard of care to manage RDS in premature infants. We are implementing a plan that, if successful, is intended to result in the commercial introduction of SURFAXIN in the United States in the fourth quarter of 2013.

AEROSURF[®] is a drug/device combination product that combines our KL4 surfactant with our proprietary capillary aerosol generator (CAG). We are developing AEROSURF for premature infants with or at risk for developing RDS. AEROSURF potentially will provide practitioners with the ability to deliver surfactant therapy using a less-invasive method. We believe that AEROSURF, if approved, potentially may enable the treatment of a significantly greater number of premature infants at risk for RDS who could benefit from surfactant therapy but who are currently not treated.

We are developing a lyophilized (freeze-dried) dosage form of our KL4 surfactant that is stored as a powder and resuspended to liquid form prior to use with the objective of improving ease of use for healthcare practitioners, as well as potentially to prolong shelf life and eliminate the need for cold-chain storage. We are engaged in a technology transfer of our lyophilized KL4 surfactant manufacturing process to a contract manufacturing organization (CMO) that has expertise in lyophilized products, and we expect that it will manufacture drug product for use in our preclinical and clinical development activities. Our development plan is intended initially to support the use of our lyophilized KL4 surfactant in our AEROSURF development program. We are also assessing a potential development plan intended to gain marketing authorization for SURFAXIN LS[™], a lyophilized dosage form of SURFAXIN, in the United States (U.S.) and potentially in other major markets.

AFECTAIR[®], our novel disposable aerosol-conducting airway connector simplifies the delivery of inhaled therapies (including our aerosolized KL4 surfactant) to critical-care patients requiring ventilatory support by introducing the inhaled therapy directly at the patient interface and minimizing the number of connections in the ventilator circuit. In February 2012, we successfully registered our AFECTAIR device in the United States as a Class I, exempt medical device. We have developed an initial AFECTAIR device for use with infants receiving ventilatory support in the NICU and Pediatric Intensive Care Unit (PICU). We are executing the commercial introduction of the AFECTAIR device for infants with an user experience program in leading U.S. critical care centers that represent approximately 10% of the Company's targeted institutions. Following completion of this phase, we plan to implement a broader introduction of AFECTAIR.

In the U.S., we have established our own specialty respiratory critical care commercial and medical affairs organizations that are experienced in and will focus on neonatal indications. These organizations will be primarily responsible to effect the commercial introduction of SURFAXIN. With our established relationships and contacts in the neonatal community, we believe that we also will be able to use our commercial and medical affairs organizations to effectively introduce the AFECTAIR device for infants in the U.S. We also expect that, in the future, these teams will be able to leverage the experience and relationships that we gain with the introduction of SURFAXIN and the AFECTAIR device for infants to efficiently support the introductions of AEROSURF and SURFAXIN LS, if approved.

An important priority is to secure strategic resources to support the continued development and commercial introduction of our RDS products. While we currently plan to retain all rights and commercialize our approved products in the U.S., we are focused on identifying potential strategic alliances to assist us in markets outside the U.S. We seek strategic partners that have broad experience in the designated markets, including regulatory and product development expertise as well as, if our products are approved, an ability to commercialize our products. In addition to development and commercial support, such alliances typically also would provide us with financial resources to support our efforts, potentially in the form of upfront payments, milestone payments, commercialization royalties and a sharing of research and development expenses. In 2013, we are engaged in discussion with potential partners concerning a potential significant strategic alliance predominantly focused on the European Union (EU). To date, our discussions have been primarily focused on AEROSURF. We also will consider various financing alternatives or collaboration arrangements that would provide infusions of capital and other resources needed to advance our KL4 surfactant programs. We may also seek strategic alliances and/or collaboration arrangements to support the potential commercial introduction of SURFAXIN and, if approved, SURFAXIN LS in countries where regulatory marketing authorization is facilitated by the information contained in our SURFAXIN new drug application (NDA) as approved by the FDA. There can be no assurance that we will be successful in concluding any strategic alliance, collaboration or other similar transaction.

Trademark Notice

AEROSURF[®], AFECTAIR[®], DISCOVERYLABS[®], INSPIRED INNOVATION[®], SURFAXIN[®], and WARMING CRADLE[®] are registered trademarks of Discovery Laboratories, Inc. (Warrington, PA)

The Offering

The selling security holders named in this prospectus may offer up to 2,340,000 shares of our common stock, which includes shares of our common stock issuable upon the exercise of warrants to purchase shares of common stock. Our common stock currently is listed on The NASDAQ Capital Market under the symbol "DSCO." Shares of common stock that may be offered in this offering, when issued and paid for, will be fully paid and non-assessable. We will not receive any of the proceeds of sales by the selling security holders of any of the securities covered by this prospectus.

Corporate Information

We maintain our principal offices and research at 2600 Kelly Road, Suite 100, Warrington, Pennsylvania. Our telephone number is 215-488-9300. Our website address is www.discoverylabs.com. Information contained in, or accessible through, our website does not constitute a part of this prospectus supplement or the accompanying prospectus.

FINANCING WITH THE DEERFIELD ENTITIES

On February 13, 2013, we entered into a lending facility (the “Deerfield Facility”) with the Deerfield Entities by way of a Facility Agreement, dated February 13, 2013 (the “Facility Agreement”) pursuant to which the Deerfield Entities agreed to provide financing to the Company of up to \$30 million on a secured basis, subject to the terms and conditions set forth in the Facility Agreement.

Under the terms of the Facility Agreement, the Deerfield Entities will advance funds to the Company in two disbursements. The first disbursement, in the amount of \$10 million occurred upon execution of the Facility Agreement (the “Agreement Date”). The second disbursement, in the amount of \$20 million, will occur on or about the date of the first commercial sale of SURFAXIN[®] (lucinactant) for the prevention of respiratory distress syndrome (RDS) in premature infants at high risk for RDS, provided that such initial product sale date is not later than December 31, 2013 (the “Milestone Date”). The Company is required to pay to the Deerfield Entities at the time of each disbursement a transaction fee equal to one and one-half percent (1.5%) of the amount disbursed under the Facility Agreement.

Any amounts drawn under the Facility Agreement shall accrue interest at a rate of 8.75% per annum, which shall be payable quarterly in cash. The Company has the right to prepay any amounts owed without penalty. In addition, at the election of the holders of the notes evidencing loans under the Facility Agreement (“Notes”), the principal amounts of the Notes may be reduced to the extent that the holders elect to apply a portion of the principal amount outstanding under the Notes to satisfy the exercise price of the related Warrants (see below) upon exercise of all or a portion of the Warrants. The principal amounts outstanding under the Facility Agreement are payable in equal installments on the fourth, fifth and sixth anniversaries of the Facility Agreement; provided that the amount payable on the fourth anniversary shall be deferred for one year if either (i) the Company’s “Net Sales” (defined below) for the immediately preceding 12-month period are at least \$20 million, or (ii) the Company’s “Equity Value” (defined below) is at least \$200 million; and provided further, that the amount payable on the fifth anniversary (together with any amount deferred on the fourth anniversary) shall be deferred until the sixth anniversary if either (x) the Company’s “Net Sales” for the immediately preceding 12 month period are at least \$30 million, or (ii) the Company’s “Equity Value” is at least \$250 million. For the purposes of the foregoing deferrals of principal, “Net Sales” means, without duplication, the gross amount invoiced by or on behalf of the Company, any of its Subsidiaries or any direct or indirect assignee or licensee for products, sold globally in bona fide, arm’s length transactions, less customary deductions determined without duplication in accordance with generally accepted accounting principles; and “Equity Value” means, with respect to each measurement date, the product of (x) the number of issued and outstanding shares of common stock of the Company (the “Common Stock”) on such measurement date multiplied by (y) the per share closing price of the Common Stock on such measurement date.

Additionally, any amounts drawn under the Facility Agreement may become immediately due and payable upon (i) an “Event of Default,” as defined in the Facility Agreement, in which case the Deerfield Entities would have the right to require the Company to repay the outstanding principal amount of the loan, plus any accrued and unpaid interest thereon, or (ii) the occurrence of certain events as defined in the Facility Agreement, including the consummation of a change of control transaction or the sale of more than 50% of the Company’s assets (collectively, a “Major Transaction”).

The Facility Agreement also contains various representations and warranties and affirmative and negative covenants customary for financings of this type, including restrictions on the ability of the Company to incur additional indebtedness and grant additional liens on its assets.

Warrants

In connection with the execution of the Facility Agreement, on February 13, 2013, the Company issued to the Deerfield Entities warrants to purchase an aggregate of 2,340,000 shares of the Common Stock at an exercise price of \$2.81 per share of Common Stock, representing a 24% premium to the closing price of Common Stock on The NASDAQ Capital Market on the immediately preceding trading day. Following the Milestone Date and upon disbursement of the additional \$20 million loan under the Facility Agreement, the Company will issue warrants to purchase an additional 4,660,000 shares of Common Stock at an exercise price of \$2.81 per share of Common Stock (together with the warrants in the preceding sentence, the “Warrants”). The number of shares of Common Stock into which a Warrant is exercisable and the exercise price of any Warrant will be adjusted to reflect any stock splits, recapitalizations or similar adjustments in the number of outstanding shares of Common Stock.

Each Warrant issued under the Facility Agreement expires on the sixth anniversary of the Facility Agreement and contains certain limitations that generally prevent the holder from acquiring shares upon exercise of a Warrant that would result in the number of shares beneficially owned by it to exceed 9.985% of the total number of shares of Common Stock then issued and outstanding. In addition, in no event shall the aggregate number of shares issued by the Company pursuant to the Warrants or the Facility Agreement exceed 8,500,000 shares of Common Stock (which amount shall be adjusted from time to time in connection with a recapitalization or reclassification).

The holder of a Warrant may exercise the Warrants either for cash or on a cashless basis. In connection with a Major Transaction, as defined in the Warrants, to the extent of consideration payable to stockholders in cash in connection with such Major Transaction, the holder may have the option to redeem the Warrant or that portion of the Warrant for cash in an amount equal to the Black-Scholes value (as defined in the Warrant) of the Warrant or that portion of the Warrant redeemed. In addition, in connection with a Major Transaction, to the extent of any consideration payable to stockholders in securities, or in the event of an Event of Default, the holder may have the option to exercise the Warrant and receive therefor that number of shares of Common Stock that equals the Black Scholes value of the Warrant or that portion of the Warrant exercised. Prior to the holder exercising the Warrant for shares in such transactions, the Company may elect to terminate the Warrant or that portion of the Warrant and pay the holder cash in an amount equal to the Black Scholes value of the Warrant.

Registration Rights Agreement

In connection with the Financing, the Company entered into a Registration Rights Agreement with the Deerfield Entities (the “Registration Rights Agreement”) obligating the Company to register for resale the shares of Common Stock issuable upon the exercise of the Warrants or shares issued in connection with an event of default or repayment of the facility pursuant to the terms of the Facility Agreement on a registration statement on Form S-3 to be filed with the Securities and Exchange Commission within 60 days after the applicable Warrants are issued.

Security Agreement

The Company has also entered into a Security Agreement with the Deerfield Entities (the “Security Agreement”), pursuant to which, as security for the Company’s repayment of its obligations under the Facility Agreement, the Company granted to the Deerfield Entities a security interest in substantially all of its assets.

The foregoing summary of the Deerfield Facility does not purport to be complete and is qualified by reference to the Facility Agreement, the Registration Rights Agreement, the Form of Warrant and the Security Agreement, copies of which have been filed or incorporated by reference as exhibits to the registration statement of which this prospectus is a part.

RISK FACTORS

An investment in our common stock involves significant risks. You should carefully consider the risks described below or in any applicable prospectus supplement and other information, including our financial statements and related notes previously included in our periodic reports filed with the SEC, and in the documents incorporated therein by reference before deciding to invest in our securities, including without limitation, our Annual Report on Form 10-K for the year ended December 31, 2012 and our Quarterly and Current Reports filed thereafter, each of which is incorporated herein by reference. The risks described below are not the only ones that we face. Additional risks not presently known to us or that we currently deem immaterial may also impair our business operations. The following risks, among others, could cause our actual results, performance, achievements or industry results to differ materially from those expressed in our forward-looking statements contained herein and presented elsewhere by management from time to time. If any of the following risks actually occurs, our business prospects, financial condition or results of operations could be materially harmed. In such case, the market price of our securities would likely and you could lose all or part of your investment.

Risks Related to this Offering and Our Common Stock

The market price of our stock may be adversely affected by market volatility.

The market price of our common stock, like that of many other development stage pharmaceutical or biotechnology companies, has been and is likely to continue to be volatile. In addition to general economic, political and market conditions, the price and trading volume of our stock could fluctuate widely in response to many factors, including:

- announcements of the results of clinical trials by us or our competitors;
- patient adverse reactions to drug products;
- governmental approvals, delays in expected governmental approvals or withdrawals of any prior governmental approvals or public or regulatory agency concerns regarding the safety or effectiveness of our products;
- changes in the United States or foreign regulatory policy during the period of product development;
- changes in the United States or foreign political environment and the passage of laws, including tax, environmental or other laws, affecting the product development business;
- developments in patent or other proprietary rights, including any third party challenges of our intellectual property rights;
- announcements of technological innovations by us or our competitors;
- actual or anticipated variations in our operating results due to the level of development expenses and other factors;
- changes in financial estimates by securities analysts and whether our earnings meet or exceed the estimates;
- conditions and trends in the pharmaceutical and other industries;
- new accounting standards; and
- the occurrence of any of the risks described in these “Risk Factors” or in our Annual Report on Form 10-K for the year ended December 31, 2012 and our other public filings, including the Current Report on Form 8-K that we filed with the SEC on April 15, 2013.

In addition, the price of our common stock could also be affected by market factors, including rebalancing of portfolios by institutional investors and resetting of indexes. Our common stock is listed for quotation on The NASDAQ Capital Market. During the twelve month period ended December 31, 2012, the price of our common stock ranged from \$1.67 to \$5.39. We expect the price of our common stock to remain volatile. The average daily trading volume in our common stock varies significantly. For the twelve month period ended December 31, 2012, the average daily trading volume in our common stock was approximately 875,035 shares and the average number of transactions per day was approximately 2,208. The instability observed in our daily volume and number of transactions per day may affect the ability of our stockholders to sell their shares in the public market at prevailing prices.

In the past, following periods of volatility in the market price of the securities of companies in our industry, securities class action litigation has often been instituted against companies in our industry. Even if securities class actions that we may face in the future are ultimately determined to be meritless or unsuccessful, they involve substantial costs and a diversion of management attention and resources, which could negatively impact our business.

If we raise additional capital in the future, your ownership in us could be diluted.

Any issuance of equity we may undertake in the future to raise additional capital could cause the price of our common stock to decline, or require us to issue shares at a price that is lower than that paid by holders of our common stock in the past, which would result in those newly issued shares being dilutive. If we obtain funds through a credit facility or through the issuance of debt or preferred securities, these securities would likely have rights senior to your rights as a common shareholder, which could impair the value of our common stock.

A sale of a substantial number of shares of our common stock may cause the price of our common stock to decline.

Sales of a substantial number of shares of our common stock in the public market following this offering could cause the market price of our common stock to decline. A substantial majority of the outstanding shares of our common stock are, and all of the shares sold in this offering upon issuance will be, freely tradable without restriction or further registration under the Securities Act unless these shares are purchased by affiliates. In addition, as of December 31, 2012, 11,947,349 shares of our common stock are issuable upon exercise of outstanding options and warrants granted by us, which also have been registered or registered for resale on registration statements filed with the Securities and Exchange Commission. The outstanding options have a weighted average exercise price of \$11.11 per share and expire through November 2022. The outstanding warrants have a weighted average exercise price of \$5.82 per share and expire between November 2013 and March 2016. If our stock price increases, the holders of such options, warrants and convertible securities may exercise such securities and could sell a large number of these shares into the market. These additional issuances and sales could cause the market price of our common stock to decline. In addition, as of the date of this prospectus supplement, there are 1,074,114 shares remaining for sale under our Committed Equity Financing Facility (CEFF) with Kingsbridge Capital Ltd., which will expire on June 11, 2013. We also have entered into an At-the-Market Equity Offering Sales Agreement (ATM Program) with Stifel, Nicolaus & Company, Incorporated (Stifel), under which Stifel, as our exclusive agent, at our discretion and at such times that we determine from time to time, may sell over a three-year period up to a maximum of \$25,000,000 of shares of our common stock. Use of these equity programs would increase our outstanding, which could cause the market price of our common stock to decline.

We cannot predict whether future issuances of shares of our common stock or the availability of shares for resale in the open market will decrease the market price per share of our common stock. Sales of substantial amounts of our shares of common stock in the public market, or even the perception that such sales might occur, could adversely affect the market price of the shares of our common stock.

FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference herein and therein, contain “forward-looking statements” within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. The forward-looking statements are only predictions and provide our current expectations or forecasts of future events and financial performance and may be identified by the use of forward-looking terminology, including the terms “believes,” “estimates,” “anticipates,” “expects,” “plans,” “intends,” “may,” “will” or “should” or, in each case, their negative, or other variations or comparable terminology, though the absence of these words does not necessarily mean that a statement is not forward-looking. Forward-looking statements include all matters that are not historical fact and include, without limitation, statements concerning: our business strategy, outlook, objectives, future milestones, plans, intentions, goals, and future financial condition, including the period of time for which our existing resources will enable us to fund our operations. Forward-looking statements include our financial, clinical, manufacturing and distribution plans and our expectations and timing related to commercialization of SURFAXIN[®], the AFECTAIR[®] device for infants and our products under development, if approved; our expectations, timing and outcomes of submitting regulatory filings for our products under development; our research and development programs, including planning and development activities, anticipated timing of any clinical trials and potential development milestones, for our KL4 surfactant pipeline, and our proprietary technologies for delivery of aerosolized medications; and plans regarding potential strategic alliances and other collaborative arrangements with pharmaceutical companies and others to develop, manufacture and market our products.

We intend that all forward-looking statements be subject to the safe-harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements are subject to many risks and uncertainties that could cause actual results to differ materially from any future results expressed or implied by the forward-looking statements. We caution you therefore against relying on any of these forward-looking statements. They are neither statements of historical fact nor guarantees or assurances of future performance. Examples of the risks and uncertainties include, but are not limited to:

- the risks related to the Company’s determination in the third quarter 2012 that an analytical chemistry method required improvement and, in connection therewith, the Company determined that an update to product specifications was necessary and thereafter submitted updated product specifications to the FDA; in connection with the FDA response to the Company’s submission, in which the FDA requested clarification and provided recommendations with respect to the recently-submitted updated product specifications, including but not limited to the risks that the Company will be unable to successfully complete the work necessary to respond to the FDA within the anticipated timeline, if at all; that the FDA will not accept the Company’s responsive submission, or may require additional information that would require additional time, or may not respond within the time outlined in the guidelines set forth in the Prescription Drug User Fee Act (PDUFA) (which suggest four months for submissions of the type planned by the Company); and other risks and uncertainties related to the updated product specifications, including those outlined in the Current Report on Form 8-K that the Company filed with the SEC on April 15, 2013;
- the risk that we will require, and be unable to secure, significant additional capital to continue our operations and our research and development activities, including our planned clinical programs. Moreover, to the extent that we raise such capital through additional financings, such additional financings could result in equity dilution;
- the risk that, if we are unable for any reason to introduce, or if there is a significant delay or interruption in the commercial introduction of, SURFAXIN and AFECTAIR in the U.S. and other markets as planned, or if we do not achieve the level of expected revenues that we have forecasted, we may be unable to secure additional capital, from strategic alliances or other sources, to sustain our operations, which could have a material adverse effect on our ability to continue investing in our commercialization activities, as well as our research and development programs;
- the risk that, if we fail to successfully commercialize SURFAXIN and AFECTAIR, or if SURFAXIN and AFECTAIR do not gain market acceptance for any reason, our revenues would be limited, which ultimately could have a material adverse effect on our business, financial condition and results of operations;

- the risk that we may be unable to enter into strategic alliances or collaboration agreements to support the development of our KL4 surfactant pipeline products, beginning with AEROSURF® (a drug/device combination product based on our aerosolized KL4 surfactant and our CAG technology), including the development of our lyophilized (freeze-dried) KL4 surfactant, and, if approved, commercialization of AEROSURF in markets outside the U.S.; and to support the development of SURFAXIN LS, our lyophilized dosage form of SURFAXIN, and to support the commercialization of SURFAXIN and, if approved, SURFAXIN LS in countries where regulatory marketing authorization is facilitated by the information contained in the SURFAXIN new drug application (NDA) approved by the United States Food and Drug Administration (FDA);
- risks relating to the ability of our sales and marketing organization to effectively market SURFAXIN and AFECTAIR in the United States, and our other product candidates, if approved, in a timely manner, if at all, and that we or our marketing and advertising consultants will not succeed in developing market awareness of our products or that our product candidates will not gain market acceptance by physicians, patients, healthcare payers and others in the medical community;
- risks relating to our plans to secure marketing and distribution capabilities in certain markets through third-party strategic alliances and/or marketing alliances and/or distribution arrangements, that could require us to give up rights to our drug products, drug product candidates and drug delivery technologies;
- risks relating to our ability to manage our growth effectively and timely modify our business strategy as needed to respond to developments in our commercial operations and research and development activities, as well as our business, our industry and other factors;
- risks relating to our ability to manufacture our KL4 surfactant, which must be processed in an aseptic environment and tested using sophisticated and extensive analytical methodologies and quality control release and stability tests, for both commercial and research and development activities;
- the risk that we, our contract manufacturers (CMOs) or any of our third-party suppliers, many of which are single-source providers, may encounter problems or delays in manufacturing our drug KL4 surfactant drug products, related substances used in the manufacture of our drug product, AFECTAIR aerosol-conducting airway connectors and related componentry, CAG devices and other materials on a timely basis or in an amount sufficient to support the commercial introduction and continued sale of SURFAXIN and AFECTAIR devices, as well as our research and development activities for our other product candidates;
- risks relating to the transfer of our manufacturing technology to CMOs and assemblers;
- risks relating to the rigorous regulatory approval processes, including pre-filing activities, required for approval of any drug, combination drug-device product or medical device that we may develop, whether independently, with strategic development partners or pursuant to collaboration arrangements;
- risks related to our efforts to gain regulatory approval, in the United States and elsewhere, for our drug product and medical device candidates, including AEROSURF, a drug-device combination product that we are developing to address RDS in premature infants and our KL4 lyophilized surfactant that we expect will be the drug component of AEROSURF and potentially be developed as a life cycle extension of SURFAXIN under the name SURFAXIN LS; and AFECTAIR, our novel aerosol-conducting airway connectors;
- the risk that we and the FDA or other regulatory authorities will not be able to agree on matters raised during the regulatory review process, or that we may be required to conduct significant additional activities to potentially gain approval of our product candidates, if ever;
- the risk that the FDA or other regulatory authorities may not accept, or may withhold or delay consideration of, any applications that we may file, or may not approve our applications or may limit approval of our products to particular indications or impose unanticipated label limitations;
- risks relating to our research and development activities, which among other things involve time-consuming and expensive preclinical studies and potentially multiple clinical trials that may be subject to potentially significant delays or regulatory holds or fail;

- risks relating to our ability to develop and manufacture drug-device combination products based on our KL4 surfactant and CAG technology for preclinical and clinical studies of our product candidates and, if approved, for commercialization;
- the risk that market conditions, the competitive landscape or other factors may make it difficult to launch and profitably sell our products;
- risks that reimbursement and health care reform may adversely affect us or that our products will not be accepted by physicians and others in the medical community;
- the risk that changes in the national or international political and regulatory environment may make it more difficult to gain FDA or other regulatory approval of our drug product and medical device candidates;
- the risk that we may be unable to maintain compliance with continued listing requirements of The NASDAQ Capital Market, which could increase the probability that our stock will be delisted, which could cause our stock price to decline;
- risks that the unfavorable credit and economic environment will adversely affect our ability to fund our activities, that our Committed Equity Financing Facility (CEFF), which will expire on June 11, 2013, may be unavailable, for any reason, or may expire or be exhausted, and that additional equity financings could result in substantial equity dilution or result in a downward adjustment to the exercise price of five-year warrants that we issued in February 2011 (which contain price-based anti-dilution revisions);
- the risks that we may be unable to maintain and protect the patents and licenses related to our products and that other companies may develop competing therapies and/or technologies;
- the risks that we may become involved in securities, product liability and other litigation and that our insurance may be insufficient to cover costs of damages and defense;
- the risk that we will be unable to attract and retain key employees in a competitive market for skilled personnel, which could have a material adverse effect on our commercial, research and development activities and our operations;
- the risk that we or our strategic partners or collaborators will not be able to attract or retain qualified scientific, professional and other personnel, which could affect our ability to develop and market our products; and
- other risks and uncertainties detailed in “Risk Factors” and in the documents incorporated by reference in this report.

Pharmaceutical, biotechnology and medical technology companies have suffered significant setbacks in advanced clinical trials, even after obtaining promising earlier trial results. Data obtained from such clinical trials are susceptible to varying interpretations, which could delay, limit or prevent regulatory approval. After gaining approval of a drug product, pharmaceutical and biotechnology companies face considerable challenges in marketing and distributing their products, and may never become profitable.

The forward-looking statements contained in this report or the documents incorporated by reference herein speak only as of their respective dates. Factors or events that could cause our actual results to differ may emerge from time to time and it is not possible for us to predict them all. Except to the extent required by applicable laws, rules or regulations, we do not undertake any obligation to publicly update any forward-looking statements or to publicly announce revisions to any of the forward-looking statements, whether as a result of new information, future events or otherwise.

USE OF PROCEEDS

We will not receive any proceeds from the sales of common stock by the Deerfield Entities pursuant to this prospectus.

SELLING STOCKHOLDERS

This prospectus relates to the resale by the selling stockholders of shares of common stock that we may issue upon exercise of the Warrants we issued to the Deerfield Entities. We are filing the registration statement of which this prospectus is a part pursuant to the provisions of the Registration Rights Agreement we entered into with the Deerfield Entities on February 13, 2013.

The selling stockholders may from time to time offer and sell pursuant to this prospectus any or all of the shares that they acquire upon exercise of the Warrants.

The following table presents information regarding the Deerfield Entities and the shares that any of the Deerfield Entities may offer and sell from time to time under this prospectus. This table is prepared based on information supplied to us by the selling stockholders, and reflects holdings as of April 8, 2013. As used in this prospectus, the term “selling stockholder” includes the Deerfield Entities and any donees, pledges, transferees or other successors in interest of the Deerfield Entities. The number of shares in the column “Number of Shares Being Offered” represents all of the shares that the selling stockholders may offer under this prospectus. The selling stockholders may sell some, all or none of its shares. We do not know how long the selling stockholders will hold the shares before selling them, and we currently have no agreements, arrangements or understandings with the selling stockholders regarding the sale of any of the shares.

Beneficial ownership is determined in accordance with Rule 13d-3(d) promulgated by the SEC under the Exchange Act, as amended, and includes shares of common stock with respect to which Deerfield Entities have voting and investment power. Shares of common stock subject to Warrants held by the Deerfield Entities that are not exercisable within 60 days after April 8, 2013 are deemed not to be beneficially owned for the purpose of computing beneficial ownership under Rule 13d-3(d). The offering is based on 43,764,737 shares of our common stock actually outstanding on April 8, 2013 and on the assumption that all shares of common stock issuable to the Deerfield Entities upon exercise of certain Warrants are outstanding as of that date.

Name	Total Number of Shares of Common Stock Beneficially Owned (1) (2)	Number of Shares Being Offered (1) (2)	Number of Shares to be Beneficially Owned after the Offering	Percentage to be Beneficially Owned after the Offering
Deerfield Private Design Fund II, L.P.	926,874	926,874	0	--
Deerfield Private Design International II, L.P.	1,062,126	1,062,126	0	--
Deerfield Special Situations Fund, L.P.	307,200	205,335	101,865	*
Deerfield Special Situations International Master Fund, L.P.	308,880	145,665	163,215	*

* Less than 1%

(1) Represents shares of common stock issuable upon exercise of Warrants.

(2) James E. Flynn, with an address at 780 Third Avenue, 37th Floor, New York, New York 10017, has voting and dispositive power over these securities.

PLAN OF DISTRIBUTION

We are registering 2,340,000 shares of common stock under this prospectus on behalf of the selling stockholders. The selling stockholders will pay any brokerage commissions and similar selling expenses attributable to the sale of the shares. We will not receive any of the proceeds from the sale of the shares by the selling stockholders. However, upon a cash exercise of the Warrants by the selling stockholders, we will receive a per share exercise price of \$2.81. If the Warrants are exercised in a cashless exercise, we will not receive any proceeds from the exercise of the Warrants.

These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. To the extent any of the selling stockholders gift, pledge or otherwise transfer the shares offered hereby, such transferees may offer and sell the shares from time to time under this prospectus, provided that this prospectus has been amended under Rule 424(b)(3) or other applicable provision of the Securities Act to include the name of such transferee in the list of selling stockholders under this prospectus.

The selling stockholders may use any one or more of the following methods when disposing of shares or interests therein: ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers; block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction; purchases by a broker-dealer as principal and resale by the broker-dealer for its account; an exchange distribution in accordance with the rules of the applicable exchange; privately negotiated transactions; short sales; through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise; broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share; a combination of any such methods of sale; and any other method permitted pursuant to applicable law.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus.

In connection with the sale of our common stock or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling stockholders may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering. Upon any exercise of the Warrants by payment of cash, however, we will receive the exercise price of the Warrants.

To the extent required, the shares of our common stock to be sold, the names of the selling stockholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholders and their affiliates. In addition, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying any applicable prospectus delivery requirements of the Securities Act.

We have agreed to indemnify the selling stockholders against certain liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

The selling stockholders and any broker dealers that act in connection with the sale of the shares may be deemed to be “underwriters” as the term is defined in Section 2(11) of the Securities Act. Consequently, any commissions received by these broker dealers and any profit on the resale of the shares sold by them while acting as principals might be deemed to be underwriting discounts or commissions under the Securities Act.

The selling stockholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act of 1933, provided that they meet the criteria and conform to the requirements of that Rule.

DESCRIPTION OF COMMON STOCK

This description of our common stock is a summary. You should keep in mind, however, that it is our Restated Certificate of Incorporation and our By-Laws, and not this summary, which define any rights you may acquire as a stockholder. There may be other provisions in such documents which are also important to you. You should read such documents for a full description of the terms of our capital stock, along with the applicable provisions of Delaware law.

We currently have authorized 100 million shares of common stock, par value \$0.001 per share. As of April 8, 2013, there were 43,764,737 shares of common stock outstanding, which does not include:

- 5,465,474 shares of common stock issuable upon exercise of outstanding options at a weighted average exercise price of \$8.41 per share;
- 7,950,335 shares of common stock issuable upon exercise of outstanding warrants at a weighted average exercise price of \$5.82 (excluding any warrants issued to the Deerfield Entities”);
- 1,074,114 shares of common stock reserved for potential future issuance pursuant to the June 2010 CEFF;
- 1,457,220 shares of common stock available for future grant under our 2011 Long-Term Incentive Plan;
- 322,338 shares of common stock reserved for potential future issuance pursuant to a 401(k) Plan; and
- an indeterminate number of shares of common stock issuable under our effective shelf registration statements on Form S-3, including shares of common stock that may be issued under our ATM Program with Stifel.

Subject to any preferential rights of any preferred stock created by our Board of Directors, as a holder of our common stock you are entitled to such dividends as our Board of Directors may declare from time to time out of funds that we can legally use to pay dividends. The holders of common stock possess exclusive voting rights, except to the extent our Board of Directors specifies voting power for any preferred stock that, in the future, may be issued.

As a holder of our common stock, you are entitled to one vote for each share of common stock and do not have any right to cumulate votes in the election of directors. Upon our liquidation, dissolution or winding-up, you will be entitled to receive on a proportionate basis any assets remaining after provision for payment of creditors and after payment of any liquidation preferences to holders of preferred stock. Holders of our common stock have no preemptive rights and no conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to our common stock. All the outstanding shares of common stock are, and the shares offered by this prospectus, when issued and paid for, will be, validly issued, fully paid and nonassessable. Our common stock is quoted on The NASDAQ Capital Market under the symbol “DSCO”.

Stockholder Rights Plan

The summary description of the Rights set out herein does not purport to be complete, and is qualified in its entirety by reference to the terms and provisions of our Shareholder Rights Agreement, dated as of February 6, 2004 (Certain values in the following discussion have been adjusted to give effect to a 1-for-15 reverse stock split that was effected in December 2010).

On February 6, 2004, our Board of Directors adopted a shareholder rights agreement (the Rights Agreement). Pursuant to the Rights Agreement our Board of Directors (i) declared that each stockholder of record as of the close of business on February 6, 2004, would be issued a dividend of one preferred stock purchase right (a Right) for each share of our common stock held by such stockholder and (ii) determined that each share of common stock issued by us after such date through the Final Expiration Date (as defined below) shall be issued with a tandem Right. Each Right represents the right to purchase fifteen ten-thousandths (0.0015) of a share of our Series A Junior Participating Cumulative Preferred Stock (Series A Preferred) at an exercise price equal to \$50 per one ten-thousandths of a share (as the same may be adjusted, the Exercise Price). The Rights shall be evidenced by certificates for our common stock until the earlier to occur of:

- 10 days following a public announcement that a person or group of affiliated or associated persons (with certain exceptions, an Acquiring Person) have acquired beneficial ownership of 15% or more of the outstanding shares of our common stock; and

- 10 business days (or such later date as may be determined by action of the Board of Directors before such time as any person or group of affiliated persons becomes an Acquiring Person) following the commencement of, or announcement of an intention to make, a tender offer or exchange offer the consummation of which would result in the beneficial ownership by a person or group of 15% or more of the outstanding shares of Common Stock (the earlier of such dates being called the Distribution Date).

The Rights are not exercisable until the Distribution Date. Until a Right is exercised, the holder thereof, as such, will have no rights as a Discovery stockholder, including, without limitation, the right to vote or to receive dividends.

The Rights will expire upon the close of business on February 6, 2014 (the "Final Expiration Date"), unless the Rights are earlier redeemed or exchanged by us, in each case as described below.

The shares of Series A Preferred purchasable upon exercise of the Rights will be entitled, when, as and if declared, to a minimum preferential quarterly dividend payment of 10,000 times the per share amount of dividends declared on our common stock. If no common stock dividend is declared in a quarter, a preferred stock quarterly dividend of \$1.00 per share will be required. Upon our liquidation, holders of Series A Preferred will be entitled to a preferential distribution payment of at least 10,000 times the payment made per share of common stock. Each share of Series A Preferred will entitle the holder to 10,000 votes, voting together with our common stock. Upon any merger, consolidation or other transaction in which shares of our common stock are converted or exchanged, the holders of Series A Preferred will be entitled to receive 10,000 times the amount of consideration received per share of our common stock in respect of such transaction. The Rights are protected by customary anti-dilution provisions.

Because of the nature of the Series A Preferred dividend and liquidation rights, the fair market value of each one ten-thousandths of a share of Series A Preferred purchasable upon exercise of each Right should approximate the fair market value of one share of our common stock. If any person or group of affiliated or associated persons becomes an Acquiring Person, each holder of a Right, (other than Rights beneficially owned by the Acquiring Person, which become void), will have the right to receive upon exercise and payment of the then current Exercise Price, that number of shares of our common stock having a market value of two times the Exercise Price.

If, after a person or group has become an Acquiring Person, we are acquired in a merger or other business combination transaction, or 50% or more of our consolidated assets or earning power are sold, proper provision will be made so that each holder of a Right (other than Rights beneficially owned by an Acquiring Person, which become void) will thereafter have the right to receive, upon exercise at the then current Exercise Price, that number of shares of common stock of the person with whom we engaged in the foregoing transaction (or its parent), which at the time of such transaction will have a market value of two times the Exercise Price. In lieu of exercise, our Board of Directors may exchange the Rights (other than Rights owned by an Acquiring Person, which become void), in whole or in part, for such securities or other property or rights as the Board may determine, including any class or series of our common stock or preferred stock.

At any time before the time an Acquiring Person becomes such, our Board of Directors may redeem the Rights in whole, but not in part, at a price of \$.015 per Right, subject to adjustment.

We may amend the Rights to the extent and on the conditions set out in the Rights Agreement.

Anti-Takeover Provisions

As a corporation organized under the laws of the State of Delaware, we are subject to Section 203 of the General Corporation Law of the State of Delaware, which restricts our ability to enter into business combinations with an interested stockholder or a stockholder owning 15% or more of our outstanding voting stock, or that stockholder's affiliates or associates, for a period of three years. These restrictions do not apply if:

- before becoming an interested stockholder, our Board of Directors approves either the business combination or the transaction in which the stockholder becomes an interested stockholder;
- upon consummation of the transaction in which the stockholder becomes an interested stockholder, the interested stockholder owns at least 85% of our voting stock outstanding at the time the transaction commenced, subject to exceptions; or
- on or after the date a stockholder becomes an interested stockholder, the business combination is both approved by our Board of Directors and authorized at an annual or special meeting of our stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock not owned by the interested stockholder.

Number of Directors; Removal

Our By-Laws provide that our Board of Directors shall consist of at least three directors and may consist of such larger number as may be determined, from time-to-time, by the Board of Directors. Our By-laws provide that directors may be removed with or without cause by the affirmative vote of holders of a majority of the total voting power of all outstanding securities.

This provision and the Board of Directors' right to issue shares of our preferred stock from time to time, in one or more classes or series without stockholder approval are intended to enhance the likelihood of continuity and stability in the composition of the policies formulated by our Board of Directors. These provisions are also intended to discourage some tactics that may be used in proxy fights.

Transfer Agent and Registrar

The Transfer Agent and Registrar for our common stock is Continental Stock Transfer & Trust Company.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2012, and the effectiveness of our internal control over financial reporting as of December 31, 2012, as set forth in their reports which are incorporated by reference in this prospectus and elsewhere in the registration statement. The report on our consolidated financial statements for the year ended December 31, 2012 contains an explanatory paragraph describing conditions that raise substantial doubt about the Company's ability to continue as a going concern as described in Note 2 to the consolidated financial statements. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's reports, given on their authority as experts in accounting and auditing.

LEGAL MATTERS

If and when offered, the validity of the securities being registered hereunder will be passed upon for us by Dentons US LLP.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and periodic reports, proxy statements and other information with the SEC. You may read and copy any materials that we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. Many of our SEC filings are also available to the public from the SEC's Website at "<http://www.sec.gov>." We make available free of charge our annual, quarterly and current reports, proxy statements and other information upon request. To request such materials, please send an e-mail to ir@DiscoveryLabs.com or contact John G. Cooper, our President and Chief Executive Officer, at the following address or telephone number: Discovery Laboratories, Inc., 2600 Kelly Road, Suite 100, Warrington, Pennsylvania 18976, Attention: John G. Cooper; (215) 488-9300. Exhibits to the documents will not be sent, unless those exhibits have specifically been incorporated by reference in this prospectus.

We maintain a Website at "<http://www.DiscoveryLabs.com>". Our Website and the information contained therein or connected thereto are not incorporated into this Registration Statement.

We have filed with the SEC a registration statement on Form S-3 under the Securities Act relating to the securities we are offering by this prospectus. This prospectus does not contain all of the information set forth in the registration statement and the exhibits and schedules to the registration statement. Please refer to the registration statement and its exhibits and schedules for further information with respect to us and our securities. Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete and, in each instance, we refer you to the copy of that contract or document filed as an exhibit to the registration statement. You may read and obtain a copy of the registration statement and its exhibits and schedules from the SEC, as described in the preceding paragraph.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to “incorporate by reference” the information we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. We incorporate by reference the documents filed with SEC listed below:

1. Our Annual Report on Form 10-K for the fiscal year ended December 31, 2012, filed on March 14, 2013;
2. Our Current Reports on Form 8-K filed with the SEC on February 2, 2012, February 8, 2012, March 7, 2012, March 16, 2012, March 29, 2012 (excluding the matters in Item 2.02 and Exhibit 99.1 therein, which are not incorporated by reference herein), May 3, 2012 (excluding the matters in Item 2.02 and Exhibit 99.1 therein, which are not incorporated by reference herein), May 10, 2012, May 11, 2012, June 28, 2012, June 29, 2012, August 2, 2012 (excluding the matters in Item 2.02 and Exhibit 99.1 therein, which are not incorporated by reference herein), August 10, 2012, September 18, 2012, September 20, 2012, October 24, 2012, November 8, 2012 (excluding the matters in Item 2.02 and Exhibit 99.1 therein, which are not incorporated by reference herein), January 4, 2013, January 8, 2013, February 13, 2013, February 20, 2013, March 13, 2013 (excluding the matters in Item 2.02 and Exhibit 99.1 therein, which are not incorporated by reference herein), March 15, 2013, April 2, 2013 and April 15, 2013;
3. The description of our common stock contained in our Registration Statement on Form 8-A filed with the SEC on July 13, 1995 and February 6, 2004; and
4. All documents we have filed with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this registration statement and before the effectiveness of the registration statement, as well as after the date of this prospectus and before the termination of this offering, shall be deemed to be incorporated by reference into this prospectus and to be a part of this prospectus from the date of the filing of the documents.

All reports and other documents subsequently filed by us with the SEC pursuant to Sections 13(a), 13(c), 14, or 15(d) of the Securities Exchange Act of 1934 after the date of this prospectus and before the termination of the offering shall be deemed to be incorporated by reference in this prospectus and to be a part of this prospectus from the date of filing of such reports and documents. This prospectus also incorporates by reference any documents that we file with the SEC after the date of the initial registration statement and before the effectiveness of the registration statement. Any statement contained in any document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or in any other subsequently filed document which also is or is deemed to be incorporated by reference in this prospectus modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

You may request a copy of these filings, at no cost, by sending an e-mail to ir@DiscoveryLabs.com and requesting any one or more of such filings or by contacting John G. Cooper, our Chief Executive Officer, at the following address or telephone number: Discovery Laboratories, Inc., 2600 Kelly Road, Suite 100, Warrington, Pennsylvania 18976-3622, Attention: John G. Cooper; (215) 488-9300. Exhibits to the documents will not be sent, unless those exhibits have specifically been incorporated by reference in this prospectus.

PART II**INFORMATION NOT REQUIRED IN PROSPECTUS****Item 14. Other Expenses of Issuance and Distribution**

The following table sets forth all expenses, other than the underwriting discounts and commissions, payable by the registrant in connection with the sale of the securities being registered. All of such fees expenses, except for the registration fee, are estimates:

	Amount
Securities and Exchange Commission registration fee	\$ 712
Accounting fees and expenses	\$ 10,000
Legal fees and expenses	\$ 40,000
Transfer agent fees and expenses	\$ 0
Printing expenses	\$ 0
Miscellaneous fees and expenses	\$ 5,000
Total	<u>\$ 55,712</u>

Item 15. Indemnification of Directors and Officers

Article Eighth of our Restated Certificate of Incorporation limits the liability of directors to the maximum extent permitted by Delaware law. Delaware law provides that directors of a corporation will not be personally liable for monetary damages for breach of their fiduciary duties as directors, except for liability for (i) any breach of their duty of loyalty to the corporation or its stockholders, (ii) acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law, (iii) unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the General Corporation Law of the State of Delaware or (iv) any transaction from which the director derives an improper personal benefit.

Our By-Laws provide that we shall indemnify our directors and officers, the directors and officers of any of our subsidiaries and any other individuals acting as directors or officers of any other corporation at our request, to the fullest extent permitted by law.

We have entered into indemnification agreements with certain of our executive officers and directors containing provisions that may require us, among other things, to indemnify them against liabilities that may arise by reason of their status or service as officers or directors, as applicable, other than liabilities arising from willful misconduct of a culpable nature and to advance certain expenses incurred as a result of any proceeding against them as to which they could be indemnified. We have obtained limited directors' and officers' liability insurance.

These provisions in our Restated Certificate of Incorporation and our By-Laws do not eliminate the officers' and directors' fiduciary duty, and in appropriate circumstances, equitable remedies such as injunctive or other forms of non-monetary relief will remain available under Delaware law. In addition, each officer and director will continue to be subject to liability for breach of their duty of loyalty to us for acts or omissions not in good faith or involving intentional misconduct, for knowing violations of law, for actions leading to improper personal benefit to the officer or director and for payment of dividends or approval of stock repurchases or redemptions that are unlawful under Delaware law. The provisions also do not affect an officer's or director's responsibilities under any other law, such as the federal securities laws or state or federal environmental laws.

Item 16. Exhibits

<u>Exhibit No.</u>	<u>Description</u>	<u>Method of Filing</u>
3.1	Amended and Restated Certificate of Incorporation of Discovery Laboratories, Inc. (Discovery), as amended by a Certificate of Amendment to the Restated Certificate of Incorporation of Discovery filed on December 27, 2010, as further amended by a Certificate of Amendment to the Restated Certificate of Incorporation of Discovery filed on October 3, 2011.	Incorporated by reference to Exhibit 3.1 to Discovery's Quarterly Report for the quarter ended September 30, 2011, as filed with the SEC on November 14, 2011.
3.2	Amended and Restated By-Laws of Discovery, as amended effective September 3, 2009.	Incorporated by reference to Exhibit 3.1 to Discovery's Current Report on Form 8-K, as filed with the SEC on September 4, 2009.
4.1	Shareholder Rights Agreement, dated as of February 6, 2004, by and between Discovery and Continental Stock Transfer & Trust Company.	Incorporated by reference to Exhibit 10.1 to Discovery's Current Report on Form 8-K, as filed with the SEC on February 6, 2004.
4.2	Certificate of Designations, Preferences and Rights of Series A Junior Participating Cumulative Preferred Stock of Discovery, dated February 6, 2004.	Incorporated by reference to Exhibit 2.2 to Discovery's Form 8-A12G, as filed with the SEC on February 6, 2004.
4.3*	Form of Warrant issued to Deerfield Entities (as defined herein).	Incorporated by reference to Exhibit 4.1 to Discovery's Current Report on Form 8-K/A, as filed with the SEC on March 15, 2013.
5.1	Opinion of Dentons US LLP, legal counsel.	Filed herewith.
10.1*	Facility Agreement dated as of February 13, 2013, between Discovery and Deerfield Private Design Fund II, L.P., Deerfield Private Design International II, L.P., Deerfield Special Situations Fund, L.P. and Deerfield Special Situations International Master Fund, L.P. as lenders (the "Deerfield Entities").	Incorporated by reference to Exhibit 10.2 to Discovery's Current Report on Form 8-K/A, as filed with the SEC on March 15, 2013.
10.2	Registration Rights Agreement dated as of February 13, 2013, between Discovery and the Deerfield Entities	Incorporated by reference to Exhibit 10.2 to Discovery's Current Report on Form 8-K/A, as filed with the SEC on March 15, 2013.
10.3	Security Agreement dated as of February 13, 2013, between Discovery and the Deerfield Entities	Incorporated by reference to Exhibit 10.3 to Discovery's Current Report on Form 8-K/A, as filed with the SEC on March 15, 2013.
23.1	Consent of Ernst & Young LLP, independent registered public accounting firm.	Filed herewith.
23.2	Consent of Dentons US LLP, legal counsel (included in its opinion filed as Exhibit 5.1 to this registration statement).	Filed herewith.
24.1	Powers of Attorney (included in signature page to this registration statement).	Filed herewith.

* Confidential treatment for redacted portions has been requested by Discovery.

Item 17. Undertakings

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) of this section do not apply if the registration statement is on Form S-3, Form S-8, or Form F-3, and the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

(d) The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirement of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized in the Township of Warrington, Commonwealth of Pennsylvania, on the 15th day of April, 2013.

DISCOVERY LABORATORIES, INC.By: /s/ John G. CooperJohn G. Cooper
President and Chief Executive Officer

We, the undersigned officers and directors of Discovery Laboratories, Inc., and each of us, do hereby constitute and appoint each of John G. Cooper, Mary B. Templeton, Esq., and John Tattory, or any of them, each acting alone, his true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, to do any and all acts and things in our name, place and stead, in any and all capacities, in connection with this registration statement on Form S-3 under the Securities Act of 1933, as amended, or any registration statement for the same offering that is to be effective upon filing under the Securities Act of 1933, as amended, including, without limitation, to sign for us or any of us in our names in the capacities indicated below any and all amendments or supplements to this registration statement, including any and all stickers and post-effective amendments to the registration statement, and to sign any and all additional registration statements relating to the same offering of securities as this registration statement that are filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission and any applicable securities exchange or securities self-regulatory body, granting unto said attorneys-in-fact and agents, each acting alone, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Name & Title	Date
<u>/s/ John G. Cooper</u>	John G. Cooper President, Chief Executive Officer and Director	April 15, 2013
<u>/s/ John Tattory</u>	John Tattory Vice President, Finance, and Chief Accounting Officer	April 15, 2013
<u>/s/ John R. Leone</u>	John R. Leone Chairman of the Board of Directors	April 15, 2013
<u>/s/ Joseph M. Mahady</u>	Joseph M. Mahady Director	April 15, 2013
<u>/s/ Bruce A. Peacock</u>	Bruce A. Peacock Director	April 15, 2013
<u>/s/ Marvin E. Rosenthale</u>	Marvin E. Rosenthale, Ph.D. Director	April 15, 2013

The Dentons logo consists of the word "DENTONS" in white, uppercase, sans-serif font, centered within a purple arrow-shaped graphic pointing to the right.

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April 15, 2013

Board of Directors
Discovery Laboratories, Inc.
2600 Kelly Road, Suite 100
Warrington, Pennsylvania 18976-3622

Re: Sale of Warrant Shares registered pursuant to
Registration Statement on Form S-3

Ladies and Gentlemen:

In our capacity as counsel to Discovery Laboratories, Inc., a Delaware corporation (the "**Company**"), we have been asked to render this opinion by the Company in connection with a registration statement on Form S-3 under the Securities Act of 1933, as amended (the "**Act**") (as so filed and amended, the "**Registration Statement**"), initially filed with the Securities and Exchange Commission (the "**Commission**") on April 15, 2013, including a related prospectus the ("**Prospectus**") covering the registration for resale of up to 2,340,000 shares (the "**Warrant Shares**") of common stock, par value \$0.001 per share, of the Company (the "**Common Stock**") issuable upon exercise of certain warrants held by certain stockholders (the "**Warrants**").

We are delivering this opinion to you at your request in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Act.

In connection with rendering this opinion, we have examined and are familiar with (i) the Company's Amended and Restated Certificate of Incorporation, (ii) the Company's By-Laws, (iii) the Registration Statement, including the prospectus contained therein, (iv) corporate proceedings of the Company relating to the Warrants and the Warrant Shares and (v) such other instruments and documents as we have deemed relevant under the circumstances.

In making the aforesaid examinations, we have assumed the genuineness of all signatures and the conformity to original documents of all copies furnished to us as original or photostatic copies. We have also assumed that the corporate records furnished to us by the Company include all corporate proceedings taken by the Company to date.

Based upon the foregoing and subject to the assumptions and qualifications set forth herein, we are of the opinion that the Warrant Shares have been duly authorized by the Company and, when issued in accordance with the terms set forth in the Registration Statement and the Prospectus, and, when issued and paid for in accordance with the terms of the Warrants, will be validly issued, fully paid and non-assessable.

The foregoing opinion is limited to Delaware corporate law (which includes the Delaware General Corporation Law and applicable provisions of the Delaware constitution, as well as reported judicial opinions interpreting same), and we do not purport to express any opinion on the laws of any other jurisdiction.

We hereby consent to the use of our opinion as an exhibit to the Registration Statement and to the reference to this firm and this opinion under the heading "Legal Matters" in the Registration Statement. In giving such consent, we do not hereby admit that we come within the category of persons whose consent is required under Section 7 of the Act, or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Dentons US LLP

DENTONS US LLP

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" in the Registration Statement (Form S-3 No. 333-00000) and related Prospectus of Discovery Laboratories, Inc. for the registration of 2,340,000 shares of its common stock and to the incorporation by reference therein of our reports dated March 15, 2013, with respect to the consolidated financial statements of Discovery Laboratories, Inc. and the effectiveness of internal control over financial reporting of Discovery Laboratories, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2012, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Philadelphia, Pennsylvania
April 15, 2013
