
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549**

Form S-3

**REGISTRATION STATEMENT UNDER
THE SECURITIES ACT OF 1933**

IDERA PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

04-3072298
(I.R.S. Employer
Identification Number)

**167 Sidney Street
Cambridge, Massachusetts 02139
(617) 679-5500**

(Address, including zip code, and telephone number,
including area code, of registrant's principal executive offices)

**Sudhir Agrawal, D. Phil
Chief Executive Officer
167 Sidney Street
Cambridge, Massachusetts 02139
(617) 679-5500**

(Name, address, including zip code, and telephone number,
including area code, of agent for service)

Copy to:
**Stuart M. Falber, Esq.
Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109
Telephone: (617) 526-6000
Fax: (617) 526-5000**

Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

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

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, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

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

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

If this form is a 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 Exchange Act. (Check one):

Large accelerated Filer Accelerated Filer Non-accelerated filer Smaller reporting company
(Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

Proposed maximum

Title of each class of securities to be registered(1)	aggregate offering price	Amount of registration fee(1)
Common Stock, \$.001 par value per share(2)	(3)	(3)
Warrants to purchase Common Stock	(3)	(3)
Total	75,000,000(4)	\$3,291.00(5)

- (1) An indeterminate amount of the securities of each identified class is being registered as may from time to time be offered hereunder at indeterminate prices, along with an indeterminate number of securities that may be issued upon exercise of securities offered or sold hereunder or pursuant to the anti-dilution provisions of any such securities. Any securities registered hereunder may be sold separately or as units with other securities registered hereunder. The proposed maximum per share and aggregate offering prices per class of security will be determined from time to time by the registrant in connection with the issuance by the registrant of the securities registered hereunder. The total amount to be registered and the proposed maximum aggregate offering price are estimated solely for the purpose of calculating the registration fee calculated pursuant to Rule 457(o) of the Securities Act of 1933, as amended (the "Securities Act").
- (2) Each share of common stock being registered hereunder, if issued prior to the termination of the Rights Agreement, dated as of December 10, 2001, as amended, between the registrant and BNY Mellon Shareholder Services, as rights agent, includes rights to purchase shares of series C junior participating preferred stock. Prior to the occurrence of certain events, none of which has occurred as of the date hereof, the rights will not be exercisable or evidenced separately from the common stock.
- (3) Not required to be included in accordance with General Instruction II.D. of Form S-3.
- (4) In no event will the aggregate offering price of all securities issued from time to time pursuant to this registration statement exceed \$75,000,000.
- (5) Pursuant to Rule 415(a)(6) under the Securities Act, this registration statement includes a total of \$28,855,200.03 of unsold securities that had previously been registered under the Registrant's registration statement on Form S-3 initially filed on August 17, 2007, file number 333-145556 (the "Prior Registration Statement"). The Prior Registration Statement registered securities for a maximum offering price of \$50,000,000. After sales by the Registrant of securities thereunder, the Prior Registration Statement has a balance of unsold securities with an aggregate offering price of \$28,855,200.03. In connection with the registration of such unsold securities on the Prior Registration Statement, the Registrant paid a registration fee of \$885.85 for such unsold securities, which fee will continue to be applied to such unsold securities. Accordingly, the amount of the registration fee for the registration of securities under this registration statement has been calculated based on the proposed maximum offering price of the additional \$46,144,799.97 of securities registered on this registration statement. Pursuant to Rule 415(a)(6), the offering of the unsold securities registered under the Prior Registration Statement will be deemed terminated as of the date of effectiveness of this registration statement.

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 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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 the offer or sale is not permitted.

Subject to Completion, dated August 26, 2010

PRELIMINARY PROSPECTUS

\$75,000,000

IDERA PHARMACEUTICALS, INC.

**Common Stock
Warrants**

We may from time to time sell common stock and warrants to purchase common stock in one or more offerings for an aggregate initial offering price of \$75,000,000. We refer to the common stock and the warrants to purchase common stock collectively as the securities. This prospectus describes the general terms of these securities and the general manner in which these securities may be offered. We will provide the specific terms of these securities to be offered and sold in supplements to this prospectus. The prospectus supplements will also describe the specific manner in which these securities will be offered and may also supplement, update or amend information contained in this document. You should read this prospectus and any applicable prospectus supplement before you invest.

We may offer these securities in amounts, at prices and on terms determined at the time of offering. The securities may be sold directly to you, through agents, or through underwriters and dealers. If agents, underwriters or dealers are used to sell the securities, we will name them and describe their compensation in the accompanying prospectus supplement.

Our common stock is traded on the Nasdaq Global Market under the symbol "IDRA." On August 23, 2010, the closing sale price of our common stock on the Nasdaq Global Market was \$3.37 per share. You are urged to obtain current market quotations for our common stock.

Investing in our securities involves certain risks. See "Risk Factors" on page 2 of this prospectus, as well as in the documents incorporated by reference in this prospectus, for a discussion of the factors you should carefully consider before deciding to purchase our securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

Prospectus dated , 2010.

TABLE OF CONTENTS

<u>ABOUT THIS PROSPECTUS</u>	1
<u>ABOUT IDERA PHARMACEUTICALS, INC.</u>	2
<u>RISK FACTORS</u>	2
<u>SPECIAL NOTE REGARDING FORWARD-LOOKING INFORMATION</u>	2
<u>USE OF PROCEEDS</u>	3
<u>THE SECURITIES WE MAY OFFER</u>	3
<u>PLAN OF DISTRIBUTION</u>	9
<u>VALIDITY OF SECURITIES</u>	10
<u>EXPERTS</u>	10
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	11
<u>INCORPORATION OF DOCUMENTS BY REFERENCE</u>	11
<u>EX-5.1</u>	
<u>EX-23.2</u>	

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, which we refer to as the SEC, utilizing a “shelf” registration process. Under this shelf registration process, we may from time to time sell a combination of the securities described in this prospectus in one or more offerings for an aggregate initial offering price of up to \$75,000,000.

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide one or more prospectus supplements that will contain specific information about the terms of the offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and the accompanying prospectus supplement together with documents incorporated by reference in this prospectus.

You should rely only on the information contained in or incorporated by reference in this prospectus, any accompanying prospectus supplement or in any related free writing prospectus filed by us with the SEC. We have not authorized anyone to provide you with different information. This prospectus does not, and together with the accompanying prospectus supplement will not, constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in the accompanying prospectus supplement or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation is unlawful. You should assume that the information appearing in this prospectus, any prospectus supplement, the documents incorporated by reference and any related free writing prospectus is accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed materially since those dates.

To the extent there is a conflict between the information contained in this prospectus and the prospectus supplement, you should rely on the information in the prospectus supplement, provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date — for example, a document incorporated by reference in this prospectus or any prospectus supplement — the statement in the document having the later date modifies or supersedes the earlier statement.

Unless the context otherwise requires, references in this prospectus to “Idera,” “we,” “us,” and “our” refer to Idera Pharmaceuticals, Inc.

ABOUT IDERA PHARMACEUTICALS, INC.

We are engaged in the discovery and development of DNA- and RNA-based drug candidates targeted to Toll-Like Receptors, or TLRs, to treat infectious diseases, autoimmune and inflammatory diseases, cancer, and asthma and allergies, and for use as vaccine adjuvants. Drug candidates are compounds that we are developing and that have not been approved for any commercial use. TLRs are specific receptors present in immune system cells that recognize the DNA or RNA of bacteria or viruses and initiate an immune response. Relying on our expertise in DNA and RNA chemistry, we have designed and created proprietary TLR agonists and antagonists to modulate immune responses. A TLR agonist is a compound that stimulates an immune response through the targeted TLR. A TLR antagonist is a compound that blocks activation of an immune response through the targeted TLR.

Our business strategy is to advance applications of our TLR-targeted drug candidates in multiple disease areas simultaneously. We are advancing some of these applications through internal programs, and we seek to advance other applications through collaborative alliances with pharmaceutical companies. Collaborators provide the necessary resources and drug development experience to advance our compounds in their programs. Upfront payments and milestone payments received from collaborations help to provide us with the financial resources for our internal research and development programs.

Our executive offices are located at 167 Sidney Street, Cambridge, MA 02139, our telephone number is (617) 679-5500 and our Internet address is www.iderapharma.com. The information on our Internet website is not incorporated by reference in this prospectus and should not be considered to be part of this prospectus. Our website address is included in this prospectus as an inactive technical reference only. Our name and logo and the names of our products are our trademarks or registered trademarks.

RISK FACTORS

An investment in our securities involves significant risks. You should carefully consider the risk factors contained in any prospectus supplement and in our filings with the SEC, as well as all of the information contained in this prospectus, any prospectus supplement and the documents incorporated by reference in this prospectus, before you decide to invest in our securities. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations.

SPECIAL NOTE REGARDING FORWARD-LOOKING INFORMATION

This prospectus, any prospectus supplement and the documents we incorporate by reference in this prospectus contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, or the Exchange Act. All statements, other than statements of historical fact, that we include in this prospectus, any prospectus supplement and in the documents we incorporate by reference in this prospectus, may be deemed forward-looking statements for purposes of the Securities Act and the Exchange Act. We use the words “anticipate,” “believe,” “estimate,” “expect,” “intend,” “may,” “plan,” “project,” “will,” “would” and similar expressions to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We cannot guarantee that we actually will achieve the plans, intentions or expectations disclosed in our forward-looking statements and, accordingly, you should not place undue reliance on our forward-looking statements. There are a number of important factors that could cause actual results or events to differ materially from the forward-looking statements that we make, including the factors included in the documents we incorporate by reference in this prospectus. You should read these factors and the other cautionary statements made in the documents we incorporate by reference as being applicable to all related forward-looking statements wherever they appear in this prospectus, any prospectus supplement and any document incorporated by reference. We caution you that we do not undertake any obligation to update forward-looking statements we make.

USE OF PROCEEDS

We intend to use the net proceeds from the sale of any securities offered under this prospectus for general corporate purposes unless otherwise indicated in the applicable prospectus supplement. General corporate purposes may include the funding of research and product development activities, the acquisition of companies, businesses or assets, repayment and refinancing of debt (if any is outstanding at such time), working capital and capital expenditures.

We expect to invest the net proceeds in investment-grade, interest-bearing securities until they are used for their stated purpose. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, our management will retain broad discretion over the allocation of net proceeds.

THE SECURITIES WE MAY OFFER

The descriptions of the securities contained in this prospectus, together with the applicable prospectus supplement, summarize the material terms and provisions of the various types of securities that we may offer. We will describe in the applicable prospectus supplement relating to any securities the particular terms of the securities offered by that prospectus supplement. If we so indicate in the applicable prospectus supplement, the terms of the securities may differ from the terms we have summarized below. We will also include in the prospectus supplement information, where applicable, about material United States federal income tax considerations relating to the securities, and the securities exchange, if any, on which the securities will be listed.

We may sell from time to time, in one or more offerings, one or more of the following securities:

- common stock; and
- warrants to purchase common stock.

The total initial offering price of all securities that we may sell in these offerings will not exceed \$75,000,000.

This prospectus may not be used to consummate a sale of securities unless it is accompanied by a prospectus supplement.

Common Stock

The following description of our common stock is intended as a summary only and is qualified in its entirety by reference to our restated certificate of incorporation, as amended, our amended and restated by-laws, and our stockholder rights plan, as amended, filed as exhibits to this registration statement, and to Delaware corporate law. We refer herein to our restated certificate of incorporation, as amended, as our certificate of incorporation, and we refer to our amended and restated by-laws as our by-laws.

We are authorized to issue 70,000,000 shares of common stock, \$0.001 par value per share. As of June 30, 2010, 23,498,637 shares of common stock were outstanding.

Voting. For all matters submitted to a vote of stockholders, each holder of common stock is entitled to one vote for each share registered in that stockholder's name on our books. Our common stock does not have cumulative voting rights. As a result, subject to the voting rights, of which there currently are none, of any outstanding preferred stock, persons who hold more than 50% of the outstanding common stock entitled to elect members of our board of directors can elect all of the directors who are up for election in a particular year.

Dividends. If our board of directors declares a dividend, holders of common stock will receive payments from our funds that are legally available to pay dividends. However, this dividend right is subject to any preferential dividend rights that we have granted or may grant to the persons who hold preferred stock.

Table of Contents

Liquidation and Dissolution. If we are liquidated or dissolved, the holders of our common stock will be entitled to share ratably in all the assets that remain after we pay our liabilities, including without limitation liabilities under the unit purchase agreement described below, and any amounts we may owe to the persons who hold preferred stock, if any is outstanding.

Other Rights and Restrictions. The outstanding shares of our common stock are validly issued, fully paid and nonassessable. Holders of our common stock do not have preemptive rights, and they have no right to convert their common stock into any other securities. Our common stock is not subject to redemption by us. The rights, preferences and privileges of common stockholders are subject to the rights of the stockholders of any series of preferred stock that are issued and outstanding or that we may issue in the future. Our certificate of incorporation and by-laws do not restrict the ability of a holder of common stock to transfer his or her shares of common stock.

Transfer Agent and Registrar. The transfer agent and registrar for our common stock is BNY Mellon Shareowner Services.

Put Right. Pursuant to the terms of a unit purchase agreement dated as of May 5, 1998, we issued and sold a total of 1,199,684 shares of common stock, which we refer to as the put shares, at a price of \$16.00 per share. Under the terms of the unit purchase agreement, the initial purchasers, which we refer to as the put holders, of the put shares have the right, which we refer to as the put right, to require us to repurchase the put shares. The put right may not be exercised by any put holder unless all of the following occur:

- we liquidate, dissolve or wind up our affairs pursuant to applicable bankruptcy law, whether voluntarily or involuntarily,
- all of our indebtedness and obligations, including without limitation the indebtedness under our outstanding notes, has been paid in full, and
- all rights of the holders of any series or class of capital stock ranking prior and senior to the common stock with respect to liquidation, including without limitation the series A convertible preferred stock, have been satisfied in full.

We may terminate the put right upon written notice to the put holders if the closing sales price of our common stock exceeds \$32.00 per share for the 20 consecutive trading days prior to the date of notice of termination. Because the put right is not transferable, in the event that a put holder has transferred put shares since May 5, 1998, the put right with respect to those shares has terminated. As a consequence of the put right, in the event we are liquidated, holders of shares of common stock that do not have put rights with respect to such shares may receive smaller distributions per share upon our liquidation than if there were no put rights outstanding.

As of December 31, 2009, we had repurchased or received documentation of the transfer of 399,950 put shares and 99,261 of the put shares continued to be held in the name of put holders. We cannot determine at this time what portion of the put rights of the remaining 700,473 put shares have terminated.

Stockholder Rights Plan

On December 10, 2001, our board of directors adopted a stockholder rights plan. The stockholder rights plan was subsequently amended on August 27, 2003, March 24, 2006 and January 16, 2007. Under the plan, each holder of our common stock at the close of business on January 7, 2002 received a dividend of one preferred stock purchase right, or a right, for each outstanding share of common stock that the stockholder owned. In addition, each share of our common stock issued after January 7, 2002 receives one right. The rights trade automatically with our shares of common stock and become exercisable only under the circumstances described below. The rights will expire on the close of business on December 10, 2011, subject to earlier expiration or termination as described in the rights plan.

The purpose of the rights is to encourage potential acquirors to negotiate with our board of directors before attempting a takeover bid and to provide our board of directors with leverage in negotiating on behalf of our

[Table of Contents](#)

stockholders the terms of any proposed takeover. The rights may have anti-takeover effects. They should not, however, interfere with any merger or other business combination approved by our board of directors.

The following description is a summary of the material terms of our stockholder rights plan. It does not restate all of the terms of the plan. The stockholder rights plan, and not this description, defines the terms and provisions of the plan.

Exercise of Rights. Until a right is exercised, the holder of a right will not have any rights as a stockholder. Currently, the rights are not exercisable. When the rights become exercisable, if ever, holders of the rights will be able to purchase from us a unit equal to 1/1000th of a share of our series C junior participating preferred stock at a purchase price of \$13.00 per unit.

In general, the rights will become exercisable upon the earlier of:

- ten business days following a public announcement that a person or group, other than an exempted person, has acquired beneficial ownership of 15% or more of the outstanding shares of our common stock; or
- ten business days after the beginning of a tender offer or exchange offer that would result in a person or group, other than an exempted person, beneficially owning 15% or more of our common stock.

Flip-In Event. If a person or group, other than an exempted person, becomes the beneficial owner of 15% or more of our common stock, then each right, other than those rights held by the person or group that exceeded the 15% threshold, will then entitle its holder to receive, upon exercise, a number of shares of our common stock which is equal to the exercise price of the right divided by one-half of the market price of our common stock on the date of the occurrence of the flip-in event. However, the rights are not exercisable following such an event until such time as the rights are no longer redeemable by us, as described below.

Flip-Over Event. If at any time after a person or group, other than an exempted person, becomes the beneficial owner of 15% or more of our common stock,

- we are acquired in a merger or other transaction in which we do not survive or in which our common stock is changed or exchanged; or
- 50% or more of our assets or earning power is sold or transferred,

then each holder of a right, other than the person or group that exceeded the 15% threshold, will be entitled to receive, upon exercise, a number of shares of common stock of the acquiring company in the transaction equal to the exercise price of the right divided by one-half of the market price of the acquiring company's common stock on the date of the occurrence of the flip-over event.

Exchange of Rights. At any time after a flip-in event, our board of directors may exchange the rights, other than those rights held by the person or group that exceeded the 15% threshold, in whole or in part, at an exchange ratio of one share of our common stock or one one-thousandth of a share of our series C junior participating preferred stock for each right.

[Table of Contents](#)

Redemption of Rights. At any time prior to the tenth business day after the occurrence of a flip-in event, we may redeem the rights in whole, but not in part, at a price of \$0.001 per right.

Certain Effects of Authorized but Unissued Stock

We have shares of common stock and preferred stock available for future issuance without stockholder approval. We may use these additional shares for a variety of corporate purposes, including future public offerings to raise additional capital, facilitating corporate acquisitions or paying a dividend on our capital stock.

The existence of unissued and unreserved shares of common stock and preferred stock may enable our board of directors to issue shares to persons friendly to current management or to issue preferred stock with terms that could render more difficult or discourage a third party's attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise, thereby protecting the continuity of our management. In addition, our issuance of preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation.

Delaware Law and Specified Certificate of Incorporation and By-law Provisions

Staggered Board. Our certificate of incorporation and by-laws provide for the division of our board of directors into three classes as nearly equal in size as possible with staggered three-year terms. In addition, our certificate of incorporation and by-laws provide that directors may be removed only for cause by the affirmative vote of the holders of two-thirds of the shares of our capital stock entitled to vote. Under our certificate of incorporation and by-laws, any vacancy on the board of directors, however occurring, including a vacancy resulting from an enlargement of the board, may only be filled by vote of a majority of the directors then in office. The classification of the board of directors and the limitations on the removal of directors and filling of vacancies could have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from acquiring, control of us.

Stockholder Action; Special Meeting of Stockholders. Our certificate of incorporation and by-laws provide that stockholders may take action only at a duly called annual or special meeting of stockholders and may not take action by written consent. Our certificate of incorporation and by-laws further provide that special meetings of our stockholders may be called only by a majority of the board of directors or by our chief executive officer or, if the office of chief executive officer is vacant, our president, and in no event may the stockholders call a special meeting.

Advance Notice Requirements for Stockholder Proposals and Director Nominations. Our by-laws provide that stockholders seeking to bring business before an annual meeting of stockholders, or to nominate candidates for election as directors at an annual meeting of stockholders, must meet specified procedural requirements. The by-laws also include a similar requirement for making nominations for directors. These provisions may preclude stockholders from bringing matters before an annual meeting of stockholders or from making nominations for directors at an annual or special meeting of stockholders.

Supermajority Votes Required. The General Corporation Law of Delaware provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or by-laws, unless a corporation's certificate of incorporation or by-laws, as the case may be, requires a greater percentage. Our certificate of incorporation and by-laws require the affirmative vote of the holders of at least 75% of the shares of our capital stock issued and outstanding and entitled to vote to amend or repeal any of the provisions described in the prior three paragraphs.

Limitation of Liability; Indemnification. Our certificate of incorporation contains provisions permitted under the General Corporation Law of Delaware relating to the liability of directors. The provisions eliminate a director's liability for monetary damages for a breach of fiduciary duty, except in circumstances involving wrongful acts, such as the breach of a director's duty of loyalty or acts or omissions that involve intentional misconduct or a knowing violation of law. This limitation of liability does not alter the liability of our directors and officers under federal securities laws. Furthermore, our certificate of incorporation contains provisions to indemnify our directors and officers to the fullest extent permitted by the General Corporation Law of Delaware. These provisions do not

[Table of Contents](#)

limit or eliminate our right or the right of any of our stockholders to seek non-monetary relief, such as an injunction or rescission in the event of a breach by a director or an officer of his or her duty of care. We believe that these provisions will assist us in attracting and retaining qualified individuals to serve as directors.

Business Combinations. We are subject to the provisions of section 203 of the General Corporation Law of Delaware. Section 203 prohibits a publicly held Delaware corporation from engaging in a “business combination” with an “interested stockholder” for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. A “business combination” includes mergers, asset sales and other transactions resulting in a financial benefit to the interested stockholder. Subject to specified exceptions, an “interested stockholder” is a person who, together with affiliates and associates, owns, or within three years did own, 15% or more of the corporation’s voting stock.

Warrants

The following description, together with the additional information we may include in any applicable prospectus supplement, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and the related warrant agreements and warrant certificates. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. If we so indicate in a prospectus supplement, the terms of any warrants offered under that prospectus supplement may differ from the terms we describe below. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement.

We may offer warrants to purchase common stock. We may offer warrants separately or together with common stock or a combination of those securities in the form of units, as described in the applicable prospectus supplement. If we offer warrants as part of a unit, the accompanying prospectus supplement will specify whether those warrants may be separated from the common stock in the unit prior to the expiration date of the warrants.

We will describe in the applicable prospectus supplement the following terms of any warrants:

- the specific designation and aggregate number of, and the offering price at which we will issue, the warrants;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- the date on which the right to exercise the warrants will begin and the date on which that right will expire or, if you may not continuously exercise the warrants throughout that period, the specific date or dates on which you may exercise the warrants;
- whether the warrants are to be sold separately or with common stock as parts of units;
- whether the warrants will be issued in definitive or global form or in any combination of these forms, although, in any case, the form of a warrant included in a unit will correspond to the form of the unit and the common stock included in that unit;
- any applicable material U.S. federal income tax consequences;
- the identity of the warrant agent for the warrants and of any other depositaries, execution or paying agents, transfer agents, registrars or other agents;
- the proposed listing, if any, of the warrants or the common stock purchasable upon exercise of the warrants on any securities exchange;

Table of Contents

- if applicable, the designation and terms of the common stock with which the warrants are issued and, the number of warrants issued with each security;
- if applicable, the date from and after which any warrants and common stock issued as part of a unit will be separately transferable;
- the number of shares of common stock purchasable upon exercise of a warrant and the price at which those shares may be purchased;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- information with respect to book-entry procedures, if any;
- the antidilution provisions of, and other provisions for changes to or adjustment in the exercise price of, the warrants, if any;
- any redemption or call provisions; and
- any additional terms of the warrants, including terms, procedures and limitations relating to the exchange or exercise of the warrants.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby:

- through underwriters;
- through dealers;
- through agents;
- directly to purchasers; and
- through a combination of any of these methods of sale.

We may directly solicit offers to purchase securities, or agents may be designated to solicit such offers. We will, in the prospectus supplement relating to such offering, name any agent that could be viewed as an underwriter under the Securities Act, and describe any commissions that we must pay. Any such agent will be acting on a best efforts basis for the period of its appointment or, if indicated in the applicable prospectus supplement, on a firm commitment basis. Agents, dealers and underwriters may be customers of, engage in transactions with, or perform services for us in the ordinary course of business.

The distribution of the securities may be effected from time to time in one or more transactions:

- at a fixed price, or prices, which may be changed from time to time;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; and
- at negotiated prices.

Each prospectus supplement will describe the method of distribution of the securities and any applicable restrictions.

The prospectus supplement with respect to the securities of a particular series will describe the terms of the offering of the securities, including the following:

- the name of any agents or any underwriters;
- the public offering or purchase price;
- any discounts and commissions to be allowed or paid to the agent or underwriters;
- all other items constituting underwriting compensation;
- any discounts and commissions to be allowed or paid to dealers; and
- any exchanges on which the securities will be listed.

If any underwriters or agents are utilized in the sale of the securities in respect of which this prospectus is delivered, we will enter into an underwriting agreement or other agreement with them at the time of sale to them, and we will set forth in the prospectus supplement relating to such offering the names of the underwriters or agents and the terms of the related agreement with them.

Table of Contents

If a dealer is utilized in the sale of the securities in respect of which the prospectus is delivered, we will sell such securities to the dealer, as principal. The dealer may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale.

Remarketing firms, agents, underwriters and dealers may be entitled under agreements which they may enter into with us to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, and may be customers of, engage in transactions with or perform services for us in the ordinary course of business.

If so indicated in the applicable prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by certain institutions to purchase securities from us pursuant to delayed delivery contracts providing for payment and delivery on the date stated in the prospectus supplement. Each contract will be for an amount not less than, and the aggregate amount of securities sold pursuant to such contracts shall not be less nor more than, the respective amounts stated in the prospectus supplement. Institutions with whom the contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutions, but shall in all cases be subject to our approval. Delayed delivery contracts will not be subject to any conditions except that:

- the purchase by an institution of the securities covered under that contract shall not at the time of delivery be prohibited under the laws of the jurisdiction to which that institution is subject; and
- if the securities are also being sold to underwriters acting as principals for their own account, the underwriters shall have purchased such securities not sold for delayed delivery. The underwriters and other persons acting as our agents will not have any responsibility in respect of the validity or performance of delayed delivery contracts.

Certain of the underwriters and their associates and affiliates may be customers of, have borrowing relationships with, engage in other transactions with, and/or perform services, including investment banking services, for, us or one or more of our respective affiliates in the ordinary course of business.

In order to facilitate the offering of the securities, any underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the securities or any other securities the prices of which may be used to determine payments on such securities. Specifically, any underwriters may overallocate in connection with the offering, creating a short position for their own accounts. In addition, to cover overallocations or to stabilize the price of the securities or of any such other securities, the underwriters may bid for, and purchase, the securities or any such other securities in the open market. Finally, in any offering of the securities through a syndicate of underwriters, the underwriting syndicate may reclaim selling concessions allowed to an underwriter or a dealer for distributing the securities in the offering if the syndicate repurchases previously distributed securities in transactions to cover syndicate short positions, in stabilization transactions or otherwise. Any of these activities may stabilize or maintain the market price of the securities above independent market levels. Any such underwriters are not required to engage in these activities and may end any of these activities at any time.

The securities may be new issues of securities and may have no established trading market. The securities may or may not be listed on a national securities exchange. We can make no assurance as to the liquidity of or the existence of trading markets for any of the securities.

VALIDITY OF SECURITIES

The validity of the securities offered hereby will be passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP, Boston, Massachusetts.

EXPERTS

The financial statements of Idera Pharmaceuticals, Inc. appearing in Idera Pharmaceuticals, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2009 and the effectiveness of Idera

[Table of Contents](#)

Pharmaceuticals, Inc.'s internal control over financial reporting as of December 31, 2009, have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such financial statements are incorporated herein by reference in reliance upon such report given on the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file reports, proxy statements and other documents with the SEC. You may read and copy any document we file with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room.

The SEC also maintains an Internet site, the address of which is www.sec.gov. That site contains our annual, quarterly and current reports, proxy statements, information statements and other information.

We have filed this prospectus with the SEC as part of a registration statement on Form S-3 under the Securities Act. This prospectus does not contain all of the information set forth in the registration statement because some parts of the registration statement are omitted in accordance with the rules and regulations of the SEC. You can obtain a copy of the registration statement from the SEC at the address listed above or from the SEC's Internet site.

We also maintain an Internet site at www.iderapharma.com, through which you can access our SEC filings. The information set forth on our Internet site is not part of this prospectus.

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus is considered to be part of this prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus incorporates by reference the documents listed below (File No. 001-31918) and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act (in each case, other than those documents or the portions of those documents not deemed to be filed) after the date of the initial registration statement and prior to effectiveness of the registration statement and until the offering of the securities under the registration statement is terminated or completed:

- Our Annual Report on Form 10-K for the year ended December 31, 2009, as filed with the SEC on March 10, 2010;
- Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2010, as filed with the SEC on May 4, 2010;
- Our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, as filed with the SEC on August 5, 2010;
- Our Current Reports on Form 8-K, as filed with the SEC on January 27, 2010, April 7, 2010, June 21, 2010 and August 3, 2010; and
- The description of our common stock contained in our Registration Statement on Form 8-A filed with the SEC on December 4, 2003, as amended by Amendment No. 1 to Form 8-A on Form 8-A/A filed with the SEC on August 17, 2007 and Amendment No. 2 to Form 8-A on Form 8-A/A filed with the SEC on December 7, 2007.

[Table of Contents](#)

We will provide a copy of any or all of the documents we incorporate by reference, at no cost, to any person who receives this prospectus. To request a copy of any or all of these documents, you should write us at 167 Sidney Street, Cambridge, Massachusetts 02139, Attention: Investor Relations, or telephone us at (617) 679-5500.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth the various expenses to be incurred in connection with the registration of the securities being registered hereby, all of which will be paid by us. All amounts shown are estimates except the SEC registration fee.

SEC registration fee	\$ 3,291
Legal fees and expenses	30,000
Accounting fees and expenses	10,000
Miscellaneous	<u>10,000</u>
Total expenses	<u>\$ 53,291</u>

Item 15. Indemnification of Directors and Officers.

Section 102 of the Delaware General Corporation Law allows a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit.

Section 145 of the Delaware General Corporation Law provides that a corporation has the power to indemnify a director, officer, employee, or agent of the corporation, or a person serving at the request of the corporation for another corporation, partnership, joint venture, trust or other enterprise in related capacities against expenses (including attorneys' fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he was or is a party or is threatened to be made a party to any threatened, ending or completed action, suit or proceeding by reason of such position, if such person acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Article EIGHTH of the Registrant's Restated Certificate of Incorporation provides that no director of the Registrant shall be personally liable to the Registrant or its stockholders for any monetary damages for any breach of fiduciary duty as a director, except to the extent that the Delaware General Corporation Law prohibits the elimination of limitation of liability of directors for breach of fiduciary duty.

Article NINTH of the Registrant's Restated Certificate of Incorporation provides that a director, officer, trustee or person acting in a similar capacity of the Registrant (a) shall be indemnified by the Registrant against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement incurred in connection with any litigation or other legal proceeding (other than an action by or in the right of the Registrant) brought against him by virtue of his position as a director or officer of the Registrant if he acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the Registrant, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful and (b) shall be indemnified by the Registrant against all expense (including attorneys' fees) and amounts paid in settlement incurred in connection with any action by or in the right of the Registrant brought against him by virtue of his position as a director or officer of the Registrant if he acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the Registrant, except that no indemnification shall be made with respect to any matter as to

[Table of Contents](#)

which such person shall have been adjudged to be liable to the Registrant, unless a court determines that, despite such adjudication but in view of all of the circumstances, he is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that a director or officer has been successful, on the merits or otherwise, including, without limitation, the dismissal of an action without prejudice, he is required to be indemnified by the Registrant against all expenses (including attorneys' fees) incurred in connection therewith. Expenses shall be advanced to a director or officer at his request, provided that he undertakes to repay the amount advanced if it is ultimately determined that he is not entitled to indemnification for such expenses.

Indemnification is required to be made unless the Registrant determines that the applicable standard of conduct required for indemnification has not been met. In the event of a determination by the Registrant that the director or officer did not meet the applicable standard of conduct required for indemnification, or if the Registrant fails to make an indemnification payment within 60 days after such payment is claimed by such person, such person is permitted to petition the court to make an independent determination as to whether such person is entitled to indemnification. As a condition precedent to the right of indemnification, the director or officer must give the Registrant notice of the action for which indemnity is sought and the Registrant has the right to participate in such action or assume the defense thereof.

Article NINTH of the Registrant's Restated Certificate of Incorporation further provides that the indemnification provided therein is not exclusive, and provides that in the event that the Delaware General Corporation Law is amended to expand the indemnification permitted to directors or officers the Registrant must indemnify those persons to the full extent permitted by such law as so amended.

The Registrant has obtained directors and officers insurance for the benefit of its directors and its officers.

Item 16. Exhibits and Financial Statement Schedules.

The exhibits listed in the Exhibit Index immediately preceding the exhibits are filed as part of this Registration Statement on Form S-3

Item 17. Undertakings.

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 the 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 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(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) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are

[Table of Contents](#)

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.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

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

[Table of Contents](#)

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.

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.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, 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 City of Cambridge, The Commonwealth of Massachusetts, on August 26, 2010.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal
Sudhir Agrawal, D. Phil
President and Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

We, the undersigned officers and directors of Idera Pharmaceuticals, Inc. hereby severally constitute and appoint Sudhir Agrawal and Louis J. Arcudi, III, and each of them singly, our true and lawful attorneys with full power to any of them, and to each of them singly, to sign for us and in our names in the capacities indicated below the Registration Statement on Form S-3 filed herewith and any and all pre-effective and post-effective amendments to said Registration Statement and any subsequent registration statement filed pursuant to Rule 462(b) under the Securities Act of 1933, as amended, and to file the same with all exhibits thereto, and the other documents in connection therewith, with the Securities and Exchange Commission, and generally to do all such things in our name and behalf in our capacities as officers and directors to enable Idera Pharmaceuticals, Inc. to comply with the provisions of the Securities Act of 1933, as amended, and all requirements of the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorneys, or any of them, to said Registration Statement and any and all amendments thereto.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities indicated as of the date indicated below.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ James B. Wyngaarden</u> James B. Wyngaarden, M.D.	Chairman of the Board of Directors	August 26, 2010
<u>/s/ Sudhir Agrawal</u> Sudhir Agrawal, D. Phil	President and Chief Executive Officer and Director (Principal Executive Officer)	August 26, 2010
<u>/s/ Louis J. Arcudi, III</u> Louis J. Arcudi, III	Chief Financial Officer, Treasurer and Secretary (Principal Financial and Accounting Officer)	August 26, 2010
<u>/s/ Robert W. Karr</u> Robert W. Karr, M.D.	Director	August 26, 2010
<u>/s/ Youssef El Zein</u> Youssef El-Zein	Director	August 26, 2010
<u>C. Keith Hartley</u>	Director	

[Table of Contents](#)

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Malcolm MacCoss</u> Malcolm MacCoss, Ph.D.	Director	August 26, 2010
<u>/s/ Hans Mueller</u> Hans Mueller, Ph.D.	Director	August 26, 2010
<u>William S. Reardon, C.P.A.</u>	Director	
<u>/s/ Eve E. Slater</u> Eve E. Slater, M.D.	Director	August 26, 2010

EXHIBIT INDEX

Exhibit No.	Description
1.1	The form of equity underwriting agreement will be filed by amendment or by a Current Report on Form 8-K.
4.1	Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q filed on August 1, 2008).
4.2	Amended and Restated By-laws of the Registrant (incorporated by reference to Exhibits to the Registrant's Registration Statement on Form S-1 (File No. 33-99024)).
4.3	Specimen Certificate for shares of Common Stock, \$.001 par value, of the Registrant (incorporated by reference to Exhibits to the Registrant's Registration Statement on Form S-1 (File No. 33-99024)).
4.4	Rights Agreement dated December 10, 2001 by and between the Registrant and BNY Mellon Shareholder Services, as rights agent, as amended by Amendment No. 1 to Rights Agreement dated as of August 27, 2003 between the Company and BNY Mellon Shareholder Services, as rights agent (incorporated by reference to Exhibit 4.3 to the Registrant's Registration Statement on Form S-2 (File No. 333-109630), filed on October 10, 2003).
4.5	Amendment No. 2 to Rights Agreement dated as of March 24, 2006 between the Company and BNY Mellon Shareholder Services, as rights agent (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on March 29, 2006).
4.6	Amendment No. 3 to Rights Agreement dated January 16, 2007 between the Company and BNY Mellon Shareholder Services, as rights agent (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed with the Securities and Exchange Commission on January 17, 2007).
4.7	The form of warrant agreement will be filed by amendment or by a Current Report on Form 8-K.
5.1*	Opinion of Wilmer Cutler Pickering Hale and Dorr LLP.
23.1*	Consent of Wilmer Cutler Pickering Hale and Dorr LLP, included in Exhibit 5.1.
23.2*	Consent of Ernst & Young LLP.
24.1*	Power of Attorney. (See page II-5 of this Registration Statement).

* Filed herewith.

[Wilmer Hale Letterhead]

August 26, 2010

Idera Pharmaceuticals, Inc.
167 Sidney Street
Cambridge, MA 02139

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

This opinion is furnished to you in connection with the Registration Statement on Form S-3 (the "Registration Statement") filed by Idera Pharmaceuticals, Inc. (the "Company") with the Securities and Exchange Commission (the "Commission") for the purpose of registering with the Commission under the Securities Act of 1933, as amended (the "Securities Act"), the following Company securities:

1. common stock, \$0.001 par value per share (the "Common Stock"); and
2. warrants to purchase Common Stock (the "Warrants" and together with the Common Stock, the "Securities");

all of which may be issued from time to time on a delayed or continuous basis pursuant to Rule 415 under the Securities Act for an aggregate initial offering price not to exceed \$75,000,000.

The Warrants will be issued pursuant to warrant agreements between the Company and bank or trust companies as warrant agents or pursuant to warrant agreements with the purchasers of the Warrants.

We are acting as counsel for the Company in connection with the issue and sale by the Company of the Securities. We have examined signed copies of the Registration Statement as filed with the Commission, including the exhibits thereto. We have also examined and relied upon the minutes of meetings of the stockholders and the Board of Directors of the Company as provided to us by the Company, the Certificate of Incorporation and By-Laws of the Company, each as restated and/or amended to date, and such other documents as we have deemed necessary for purposes of rendering the opinions hereinafter set forth.

In our examination of the foregoing documents, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as copies, the authenticity of the originals of such latter documents and the legal competence of all signatories to such documents.

We express no opinion herein as to the laws of any state or jurisdiction other than the state laws of the Commonwealth of Massachusetts, the General Corporation Law of the State of Delaware and the federal laws of the United States of America.

We assume that appropriate action will be taken prior to the offer and sale of the Securities to register and qualify the Securities under all applicable state securities "blue sky" laws.

Based upon and subject to the foregoing, we are of the opinion that:

1. With respect to the Common Stock, when (i) specifically authorized for issuance by the Company's Board of Directors or an authorized committee thereof (the "Authorizing Resolutions"), (ii) the Registration Statement has become effective under the Securities Act, (iii) the terms of the sale of the Common Stock have been duly established in conformity with the Company's Certificate of Incorporation and By-laws, each as restated and/or amended to date, and do not violate any applicable law or result in a default under or breach of any agreement or instrument binding on the Company and comply with any requirement or restriction imposed by any court or governmental body having jurisdiction over the Company, (iv) the Common Stock has been issued and
-

sold as contemplated by the Registration Statement and (v) the Company has received the consideration provided for in the Authorizing Resolutions and such consideration per share is not less than the par value per share of the Common Stock, the Common Stock will be validly issued, fully paid and non-assessable.

2. With respect to the Warrants, when (i) specifically authorized for issuance by the Authorizing Resolutions, (ii) the Registration Statement has become effective under the Securities Act, (iii) the warrant agreement or agreements relating to the Warrants have been duly authorized, executed and delivered, (iv) the terms of the Warrants and of their issuance and sale have been duly established in conformity with the warrant agreement or agreements and do not violate any applicable law or result in a default under or breach of any agreement or instrument binding upon the Company and comply with any requirement or restriction imposed by any court or governmental body having jurisdiction over the Company, (v) the Warrants have been duly executed and countersigned in accordance with the warrant agreement or agreements and issued and sold as contemplated by the Registration Statement and (vi) the Company has received the consideration provided for in the Authorizing Resolutions, the Warrants will constitute valid and legally binding obligations of the Company, subject to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar laws of general applicability relating to or affecting creditors' rights and to general equity principles.

It is understood that this opinion is to be used only in connection with the offer and sale of the Common Stock and Warrants while the Registration Statement is in effect.

Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We hereby consent to the filing of this opinion with the Commission as an exhibit to the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act and to the use of our name therein and in the related prospectus and any prospectus supplement under the caption "Validity of Securities." In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission.

Very truly yours,

WILMER CUTLER PICKERING
HALE AND DORR LLP

By: /s/ Stuart M. Falber
Stuart M. Falber, a Partner

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" in this Registration Statement (Form S-3) and related Prospectus of Idera Pharmaceuticals, Inc. for the registration of common stock and warrants to purchase common stock and to the incorporation by reference therein of our reports dated March 10, 2010, with respect to the financial statements of Idera Pharmaceuticals, Inc., and the effectiveness of internal control over financial reporting of Idera Pharmaceuticals, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2009, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Boston, Massachusetts

August 24, 2010