

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549

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**FORM 8-K**

CURRENT REPORT  
Pursuant to Section 13 or 15(d) of the  
Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): November 9, 2012

**Idera Pharmaceuticals, Inc.**

(Exact Name of Registrant as Specified in Charter)

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**Delaware**

(State or Other Jurisdiction of  
Incorporation)

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**001-31918**

(Commission File Number)

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**04-3072298**

(IRS Employer  
Identification No.)

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**167 Sidney Street**

**Cambridge, Massachusetts**

(Address of principal executive offices)

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**02139**

(Zip Code)

Registrant's telephone number, including area code: (617) 679-5500

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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**Item 1.01. Entry Into a Material Definitive Agreement.***Convertible Preferred Stock and Warrant Purchase Agreement*

On November 9, 2012, Idera Pharmaceuticals, Inc. (“Idera” or “the Company”) entered into a Convertible Preferred Stock and Warrant Purchase Agreement (the “Series E Purchase Agreement”) with Pillar Pharmaceuticals II, L.P. (“Pillar II”), an investment partnership, and the other purchaser named therein (together with Pillar II, the “Purchasers”). Youssef El Zein is a member of the Company’s board of directors (the “Board”), and is a director and controlling stockholder of the general partner of Pillar II. Pursuant to the Series E Purchase Agreement, the Company issued and sold to the Purchasers, for an aggregate purchase price of \$6,999,993, 424,242 shares of its Series E convertible preferred stock, par value \$0.01 per share (“Series E Preferred Stock”), convertible into 8,484,840 shares of common stock, \$0.001 par value per share, of the Company (“Common Stock”), and warrants (the “Warrants”) to purchase 8,484,840 shares of Common Stock. Each share of Series E Preferred Stock is convertible into 20 shares of Common Stock at a conversion price of \$0.70 per share.

Under the terms of the Series E Purchase Agreement, the Company granted the Purchasers participation rights in future financings. In addition, the Company agreed to use its best efforts to file a preliminary proxy statement for its next annual meeting of stockholders that will, among other things, seek approval from the Company’s stockholders in accordance with Section 5.11 of the Series E Purchase Agreement of the following matters:

- the issuance and sale by the Company to the Purchasers (together with all prior issuances and sales to Pillar Pharmaceuticals I, L.P. (“Pillar I”)) of a number of shares of Common Stock (including securities convertible into or exercisable for Common Stock) that is greater than 19.99% of the outstanding Common Stock or outstanding voting power of the Company after such issuance and sale in accordance with Nasdaq Listing Rule 5635(b) (the “Nasdaq Proposal”);
- an amendment to the Company’s restated certificate of incorporation (“Certificate of Incorporation”) and bylaws, as necessary, to eliminate the classification of the Board; and
- an amendment (the “Amendment to Series D Certificate of Designations”) to the Certificate of Designations, Preferences and Rights of Series D Preferred Stock (the “Series D Certificate of Designations”) for the Series D convertible preferred stock, par value \$0.01 per share, of the Company (the “Series D Preferred Stock”), which is held by Pillar I, to modify the dividend provisions of the Series D Certificate of Designations so that dividends on the Series E Preferred Stock are not required to be paid to the holders of Series D Preferred Stock and to conform the beneficial ownership limitations applicable to the conversion of the Series D Preferred Stock to the beneficial ownership limitations applicable to the conversion of the Series E Preferred Stock.

Also under the terms of the Series E Purchase Agreement, each Purchaser agreed:

- for so long as the Purchaser and its affiliates beneficially own more than 19.99% (prior to the date the stockholders of the Company approve the Nasdaq Proposal) or 25% (effective upon the date that the stockholders of the Company approve the Nasdaq Proposal) of the outstanding Common Stock, that the Purchaser and its affiliates will vote any shares held by them in excess of the number of shares equal to 19.99% or 25%, as applicable, of the outstanding Common Stock (including the shares of Common Stock issuable upon conversion or exercise of securities that are convertible into or exercisable for shares of Common Stock held by such Purchaser and its affiliates) with respect to any matter put to a vote of the holders of Common Stock in the same manner and percentage as the holders of the Common Stock (other than the Purchasers) vote on such matter;
- to certain restrictions on the transfer of any securities issued to such Purchaser (including securities convertible into or exercisable for Common Stock) pursuant to the Series E Purchase Agreement (the “Series E Securities”), including to not sell or transfer any such Series E Securities in one or a series of transactions if such transfer would, in the aggregate, result in the transfer more than 5% of the then outstanding combined voting power of the outstanding securities of the Company (excluding from this restriction certain transfers to permitted transferees or in connection with an underwritten public offering by the Company that has been approved by the Board); and

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- to be subject to a standstill provision that continues for so long as such Purchaser and its affiliates beneficially own more than 15% of the outstanding Common Stock.

The Warrants have an exercise price of \$0.70 per share (subject to adjustment) and may be exercised at the Purchaser's option at any time on or before November 9, 2017. The Warrants provide that the Company may not effect any exercise of the Warrants, and the Warrants may not be exercised with respect to any portion of the Warrants, to the extent that such exercise would result in the Purchaser and its affiliates beneficially owning more than 19.99% of the outstanding Common Stock or outstanding voting power of the Company (including shares of Common Stock issuable upon conversion of the Series E Preferred Stock and exercise of the Warrants), unless the stockholders of the Company approve the Nasdaq Proposal, in which case, the 19.99% limitation will be increased, with respect to any holder of Series E Preferred Stock, to 35%. The Warrants also provide that at any time after November 9, 2014 the Company may redeem the Warrants for \$0.01 per share of Common Stock issuable on exercise of the Warrants following notice to the Purchaser if the closing price of the Common Stock for 20 or more trading days in a period of 30 consecutive trading days is greater than or equal to \$2.80 (subject to adjustment); provided, however, that the Company may not redeem any Warrants from a holder that cannot exercise such Warrants as a result of the beneficial ownership limitations on exercise described above.

The Series E Purchase Agreement is attached hereto as Exhibit 10.1 and is incorporated herein by reference. The form of Warrant to be issued to the Purchasers is attached hereto as Exhibit 10.3 and is incorporated herein by reference. The foregoing descriptions of the Series E Purchase Agreement and the Warrants do not purport to be complete and are qualified in their entirety by reference to such exhibits.

#### *Registration Rights Agreement*

In connection with the Series E Purchase Agreement, the Company entered into a Registration Rights Agreement, dated November 9, 2012, with the Purchaser (the "Registration Rights Agreement"). Pursuant to the Registration Rights Agreement, the Company has agreed to file a registration statement with the Securities and Exchange Commission registering the resale of the shares of Common Stock issuable upon conversion of the Series E Preferred Stock and the shares of Common Stock issuable upon exercise of the Warrants. The Company is subject to specified cash penalties if it fails to file and maintain an effective registration statement. Such penalties are limited to a cumulative maximum penalty equal to 10% of the gross proceeds from the sale of the Series E Preferred Stock. The Company is required to use its reasonable best efforts to maintain the registration statement's effectiveness until no shares of Common Stock issued or issuable upon conversion of the Series E Preferred Stock or upon exercise of the Warrants remain outstanding or issuable, as applicable.

The Registration Rights Agreement is attached hereto as Exhibit 10.2 and is incorporated herein by reference. The foregoing description of the Registration Rights Agreement does not purport to be complete and is qualified in its entirety by reference to such exhibit.

#### *Amendment to Series D Purchase Agreement*

On November 9, 2012, the Company entered into Amendment No. 1 ("Amendment No. 1 to Series D Purchase Agreement") to the Convertible Preferred Stock and Warrant Purchase Agreement, dated as of November 4, 2011 (the "Series D Purchase Agreement"), between the Company and Pillar I. Mr. El Zein is a director and controlling stockholder of the general partner of Pillar I. Pursuant to Amendment No. 1 to Series D Purchase Agreement, the provisions set forth in the Series D Purchase Agreement related to the voting of certain excess shares held by Pillar I and the transfer restrictions imposed on securities purchased by Pillar I thereunder were amended to provide:

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- for so long as Pillar I and its affiliates beneficially own more than 19.99% (prior to the date the stockholders of the Company approve the Nasdaq Proposal) or 25% (effective upon the date that the stockholders of the Company approve the Nasdaq Proposal) of the outstanding Common Stock, that Pillar I and its affiliates will vote any shares held by them in excess of the number of shares equal to 19.99% or 25%, as applicable, of the outstanding Common Stock (including the shares of Common Stock issuable upon conversion of securities convertible into or exercisable for shares of Common Stock held by Pillar I and its affiliates) with respect to any matter put to a vote of the holders of Common Stock in the same manner and percentage as the holders of the Common Stock (other than the Purchasers and their affiliates) vote on such matter; and
  - for certain restrictions on the transfer of any securities issued to Pillar I (including securities convertible into or exercisable for Common Stock) pursuant to the Series D Purchase Agreement (the "Series D Securities"), including to not sell or transfer any such Series D Securities in one or a series of transactions if such transfer would, in the aggregate, result in the transfer more than 5% of the then outstanding combined voting power of the outstanding securities of the Company (excluding from this restriction certain transfers to permitted transferees or in connection with an underwritten public offering by the Company that has been approved by the Board).

Amendment No. 1 to Series D Purchase Agreement is attached hereto as Exhibit 10.4 and is incorporated herein by reference. The foregoing description of Amendment No. 1 to Series D Purchase Agreement does not purport to be complete and is qualified in its entirety by reference to such Exhibit.

*Amendment to Series D Warrant*

On November 9, 2012, the Company entered into Amendment No. 1 ("Amendment No. 1 to Series D Warrant") to the Warrant to Purchase Common Stock, dated as of November 4, 2011 (the "Series D Common Stock Warrant"), issued by the Company to Pillar I pursuant to the Series D Purchase Agreement. Pursuant to Amendment No. 1 to Series D Warrant, the provisions set forth in the Series D Common Stock Warrant limiting the Company's redemption rights with respect to the warrants issued pursuant to the Series D Purchase Agreement were amended to provide that the Company may not effect any exercise of such warrants, and such warrants may not be exercised with respect to any portion of such warrants, to the extent that such exercise would result in Pillar I and its affiliates beneficially owning more than 19.99% of the outstanding Common Stock or outstanding voting power of the Company (including shares of Common Stock issuable upon conversion of the Series D Preferred Stock and exercise of such warrants), unless the stockholders of the Company approve the Nasdaq Proposal, in which case, the 19.99% limitation will be increased, with respect to Pillar I, to 35%.

Amendment No. 1 to Series D Warrant is attached hereto as Exhibit 10.5 and is incorporated herein by reference. The foregoing description of Amendment No. 1 to Series D Warrant does not purport to be complete and is qualified in its entirety by reference to such Exhibit.

**Item 3.02. Unregistered Sales of Equities Securities.**

Pursuant to the Purchase Agreement, on November 9, 2012, the Company issued and sold to the Purchasers, for an aggregate purchase price of \$6,999,993, 424,242 shares of its Series E Preferred Stock, convertible into 8,484,840 shares of Common Stock, and Warrants to purchase 8,484,840 shares of Common Stock at a per share exercise price of \$0.70 (subject to adjustment). Each share of Series E Preferred Stock is convertible into 20 shares of Common Stock at a per share conversion price of \$0.70 (subject to adjustment).

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The shares of Series E Preferred Stock and Warrants offered and sold pursuant to the Series E Purchase Agreement were offered and sold to the Purchasers without registration under the Securities Act of 1933, as amended (the "Securities Act") or the securities laws of certain states, in reliance on the exemption provided by Regulation S under the Securities Act.

**Item 3.03. Material Modification to Rights of Security Holders.**

Pursuant to Section 4.4.4 of the Series D Certificate of Designations, the conversion price for the Series D Preferred Stock, which was initially set at \$1.6275, is required to be adjusted if, among other things, at any time after the original issue date of the Series D Preferred Stock issues Additional Shares of Common Stock (as defined in the Series D Certificate of Designations) without consideration or for consideration per share less than \$1.46 (subject to adjustment); provided, however, that the conversion price may not be adjusted to a price that is less than \$1.46 (subject to adjustment). As a result of the issuance of the Series E Preferred Stock and Warrants in the transactions described under Item 1.01 of this Current Report, the conversion price of the Series D Preferred Stock has been adjusted to \$1.46 pursuant to the terms of the Series D Certificate of Designations. Pursuant to Section 4.9 of the Series D Certificate of Designations, the Company will mail to each holder of Series D Preferred Stock a certificate notifying the holders of the new conversion price.

Pursuant to Section 2(a) of the Series D Common Stock Warrant, in the event the conversion price for the Series D Preferred Stock is adjustment pursuant to the Series D Certificate of Designations, the exercise price with respect to the shares of Common Stock issuable upon exercise of the Series D Common Stock Warrant is required to be adjusted, concurrently with the adjustment to the Series D Preferred Stock conversion price, in the same manner and in the same proportion as the Series D Preferred Stock conversion price is so adjusted. As a result of the issuance of the Series E Preferred Stock and the Warrants in the transactions described under Item 1.01 of this Current Report, the exercise price with respect to the shares of Common Stock issuable upon exercise of the Series D Common Stock Warrant has been adjusted to \$1.46 pursuant to the terms of the Series D Common Stock Warrant. Pursuant to Section 2(f) of the Series D Common Stock Warrant, the Company will mail to each holder of a Series D Common Stock Warrant a certificate notifying the holders of the new exercise price.

**Item 5.02. Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers**

On November 9, 2012, the Board elected Abdul-Wahab Umari to the Board as a Class I director. Mr. Umari's term as a Class I director will expire at the Company's 2014 annual meeting of stockholders.

In accordance with the Company's director compensation program, Mr. Umari will receive an annual cash retainer of \$35,000 for service on the Board, which is payable quarterly in arrears. The Company's director compensation program includes a stock-for-fees policy, under which Mr. Umari has the right to elect, on a quarterly basis, to receive Common Stock of the Company in lieu of the cash fees. Mr. Umari has not elected to receive the Company's Common Stock for fees at this time.

In addition, under the Company's director compensation program, upon his election to the Board, Mr. Umari was granted an option to purchase 30,000 shares of the Company's Common Stock at an exercise price of \$0.69 per share. Pursuant to the Company's director compensation program, Mr. Umari will also receive an annual option grant to purchase 20,000 shares of the Company's Common Stock on the date of the Company's annual meeting of stockholders. All options granted to non-employee directors have an exercise price equal to the closing price of the Company's Common Stock on the date of grant and vest in equal quarterly installments over three years, subject to continued service as a director. These options automatically become exercisable in full upon the occurrence of a change in control of the Company.

Mr. Umari will be subject to the Company's Director Retirement Policy, which provides for acceleration of vesting of options and an extension of the exercise period upon the retirement of a non-employee director, as more fully described in the Company's Proxy Statement filed on April 27, 2012 with the Securities and Exchange Commission.

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Mr. Umari was elected by the Board upon the recommendation of the Nominating and Corporate Governance Committee. Mr. Umari was elected to the Board in connection with the closing of the purchase by Pillar II of the Company's securities in the transactions described under Item 1.01 of this Current Report.

Mr. Umari is a managing partner of the general partner of Pillar I and Pillar II. The Company believes that the terms of its transactions with Pillar I and Pillar II, as described under Item 1.01 of this Current Report, were no less favorable than those that the Company could have obtained from unaffiliated third parties.

**Item 5.03. Amendments to Articles of Incorporation or Bylaws; Change in Fiscal Year.**

The Certificate of Incorporation permits the Board to issue up to 5,000,000 shares of preferred stock, par value \$0.01 per share, in one or more series, to designate the number of shares constituting such series, and fix by resolution, the powers, privileges, preferences and relative, optional or special rights thereof, including liquidation preferences and dividends, and conversion and redemption rights of each such series. On November 9, 2012, the Board of the Company designated 424,242 shares as Series E Preferred Stock, having the rights and preferences set forth in the Certificate of Designations as summarized below.

- *Dividends* – The holders of Series E Preferred Stock are entitled to receive cash dividends payable quarterly in arrears at the Initial Dividend Rate (as defined below) with the first payment date being March 31, 2013 (the "Series E Preferred Dividends"). If the stockholders of the Company approve the Amendment to Series D Certificate of Designations and the Amendment to Series D Certificate of Designations is filed with the Delaware Secretary of State, the dividend rate with respect to the Series E Preferred Dividends will increase from the Initial Dividend Rate to the rate of 8% per annum. The Initial Dividend Rate is also subject to increase to 8% per annum in the event that, as of any Series E Preferred Dividend payment date, there are no shares of Series D Preferred Stock outstanding. In the event that the Amendment to Series D Certificate of Designations is submitted to the stockholders of the Company and it is not approved, then the holders of the Series E Preferred Stock will no longer be entitled to any Series E Preferred Dividends. The Company will not submit the Amendment to Series D Certificate of Designations to the stockholders for approval if there are no shares of Series D Preferred Stock then outstanding. The term "Initial Dividend Rate" means 4.6% per annum or such other percentage per annum as may be approved by the Company and by the holders of at least a majority of the then outstanding shares of Series E Preferred Stock.
- *Liquidation and Other Events* – In the event of a liquidation, dissolution or winding up of the Company (other than a Sale of the Corporation (as defined in the Certificate of Designations)), whether voluntary or involuntary, after payment or provision for payment of debts and other liabilities of the Company, the holders of the Series E Preferred Stock then outstanding will be entitled to be paid out of the assets of the Company available for distribution to its stockholders an amount equal to the greater of (a) the original per share purchase price of the Series E Preferred Stock (\$14.00 per share) plus all accrued or declared but unpaid dividends thereon and (b) the amount that the holder of Series E Preferred Stock would be entitled to receive with respect to each share of Series E Preferred Stock pursuant to such liquidation if all of the outstanding shares of Series E Preferred Stock had been converted into Common Stock as of the date immediately prior to the date fixed for determination of stockholders entitled to receive a distribution in such liquidation. Such amount will be paid before any cash distribution may be made or any other assets distributed in respect of the holders of Common Stock, Series A Convertible Preferred Stock, Series D Preferred Stock or any other class of capital stock of the Company ranking junior to the Series E Preferred Stock as to liquidation. In the event of a Sale of the Corporation, after payment to the holders of the Series A Preferred Stock, Series D Preferred Stock and any other class of capital stock of the Company ranking senior to the Series E Preferred Stock, the remaining assets of the Company available for distribution to its stockholders will be distributed among the holders of shares of Series E Preferred Stock and Common Stock on a pro rata (and as converted to Common Stock) basis based on the number of shares held by each such holder.

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- *Voting* – Unless and until the stockholders of the Company approve the Nasdaq Proposal, the Series E Preferred Stock will have no voting rights. Subject to and effective upon the date that the stockholders of the Company approve the Nasdaq Proposal, each holder of outstanding shares of Series E Preferred Stock will be entitled to cast a number of votes equal to the lesser of (a) the number of whole shares of Common Stock into which the shares of Series E Preferred Stock held by such holder are convertible and (b) the product of the Voting Adjustment Percentage (as defined in the Certificate of Designations) multiplied by the number of whole shares of Common Stock into which the shares of Series E Preferred Stock held by such holder are convertible. The intent of the Voting Adjustment Percentage is to provide that the maximum aggregate voting power that the holders of Series E Preferred Stock and their affiliates may hold does not exceed 35% of the total outstanding voting power of the Company at any time. The Voting Adjustment Percentage does not modify the provisions set forth in the Series E Purchase Agreement that require the Purchasers and their affiliates to vote any shares held by them in excess of the number of shares equal to 19.99% or 25%, as applicable, of the outstanding Common Stock (including shares of Common Stock issuable upon conversion or exercise of securities that are convertible into or exercisable for shares of Common Stock held by the Purchasers and their affiliates) in the same manner and percentage as the holders of the Common Stock (other than the Purchasers and their affiliates) vote on such matter as described in Item 1.01 of this Current Report.
  - *Protective Provisions* – For so long as at least 84,849 shares of Series E Preferred Stock (subject to adjustment) remain outstanding, the Company has agreed that it will not, directly or indirectly, (a) amend the Certificate of Incorporation or bylaws of the Company in a manner that adversely and uniquely affects the Series E Preferred Stock, (b) except as expressly permitted by the Certificate of Designations, purchase or redeem or pay or declare any dividend or make any distribution on, any shares of capital stock of the Company, or (c) recapitalize or reclassify any of the Common Stock, without in each case the written consent or affirmative vote of the holders of at least 51% of the then outstanding shares of Series E Preferred Stock (in addition to any other vote required by law or the Certificate of Incorporation).
  - *Conversion* – Each share of Series E Preferred Stock is convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing the Series E Preferred Stock original issue price by the Series E Preferred Stock conversion price in effect at the time of conversion. The Series E Preferred Stock conversion price is initially equal to \$0.70 and the Series E Preferred Stock issue price is initially equal to the \$14.00 original purchase price of the Series E Preferred Stock. Accordingly, each share of Series E Preferred Stock is initially convertible at the option of the holder into 20 fully paid and nonassessable shares of the Common Stock. No holder may convert its shares to the extent such conversion would result in the holder and its affiliates beneficially owning more than 19.99% of the outstanding Common Stock or outstanding voting power of the Company (including shares of Common Stock issuable upon conversion of the Series E Preferred Stock), unless the stockholders of the Company approve the Nasdaq Proposal, in which case, the 19.99% limitation will be increased, with respect to any holder of Series E Preferred Stock, to 35%. The initial Series E Preferred Stock conversion price, and the rate at which shares of Series E Preferred Stock may be converted into shares of Common Stock, are subject to adjustment for stock dividends, stock splits and other similar events, as provided in the Certificate of Designations.
  - *Redemption* – After the later of (i) November 9, 2014 and (ii) the date that no shares of Series D Preferred Stock remain outstanding, the Company may redeem all or a portion of the Series E Preferred Stock for a cash payment equal to the original Series E Preferred Stock issue price per share plus any accrued or declared but unpaid dividends thereon following notice to the holders of the Series E Preferred Stock if the closing price of the Common Stock for 20 or more trading days in a period of 30 consecutive trading days is greater than or equal to 400% of the Series E Preferred Stock conversion price. The Company may not redeem any shares of Series E Preferred Stock from a holder that cannot convert such shares of Series E Preferred Stock into Common Stock as a result of the beneficial ownership limitations described above under “Conversion” (such shares, the “Nonredeemable Shares”). In such event, the Company may redeem the Nonredeemable Shares pursuant to alternative redemption provisions set forth in the Certificate of Designations following notice to the holders of the Nonredeemable Shares, for a cash payment equal to the greater of (a) the 20 consecutive trading day average closing price per share of the Common Stock ending on the trading day immediately prior to redemption date plus any dividends accrued or declared but unpaid thereon and (b) the Series E Conversion Price plus any dividends accrued or declared but unpaid thereon.

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The Certificate of Designations is attached hereto as Exhibit 3.1 and incorporated herein by reference. The description of the Certificate of Designations does not purport to be complete and is qualified in its entirety by reference to such Exhibit.

**Item 9.01. Financial Statements and Exhibits.**

(d) Exhibits

See Exhibit Index attached hereto.



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**SIGNATURE**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

**Idera Pharmaceuticals, Inc.**

Date: November 14, 2012

By: /s/ Louis J. Arcudi, III  
Louis J. Arcudi, III  
*Chief Financial Officer,  
Treasurer and Secretary*

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**EXHIBIT INDEX**

<u>Exhibit No.</u>	<u>Description</u>
3.1	Certificate of Designations, Preferences and Rights of Series E Preferred Stock of the Company
10.1	Convertible Preferred Stock and Warrant Purchase Agreement, dated November 9, 2012, among the Company and the Purchasers named therein
10.2	Registration Rights Agreement, November 9, 2012, among the Company and the Purchasers named therein
10.3	Form of Warrant issued to each Purchaser pursuant to Convertible Preferred Stock and Warrant Purchase Agreement, dated November 9, 2012, among the Company and the Purchasers named therein
10.4	Amendment No. 1, dated November 9, 2012, to Convertible Preferred Stock and Warrant Purchase Agreement, dated November 4, 2011, between the Company and the Purchaser named therein
10.5	Amendment No. 1, dated November 9, 2012, to Warrant, dated November 4, 2011, between the Company and the Registered Holder named therein

**CERTIFICATE OF DESIGNATIONS, PREFERENCES AND RIGHTS**  
**OF**  
**SERIES E PREFERRED STOCK**  
**OF**  
**IDERA PHARMACEUTICALS, INC.**

(Pursuant to Section 151 of  
the Delaware General Corporation Law)

Idera Pharmaceuticals, Inc. (the “**Corporation**”), a corporation organized and existing under the laws of the State of Delaware, hereby certifies that, pursuant to authority conferred on its Board of Directors (the “**Board**”) by the Restated Certificate of Incorporation of the Corporation, as amended (the “**Certificate of Incorporation**”), the following resolution was adopted by the Board at a meeting duly called and held on November 9, 2012, which resolution remains in full force and effect on the date hereof:

**RESOLVED**, that there is hereby created and established a series of the Corporation’s authorized Preferred Stock (the “**Preferred Stock**”) having a par value of \$0.01 per share, which series shall be designated as “Series E Convertible Preferred Stock” (the “**Series E Preferred Stock**”) and shall consist of 424,242 shares. The shares of Series E Preferred Stock shall have the voting powers, designations, preferences and other special rights, and qualifications, limitations and restrictions thereof set forth below:

1. Dividends.

1.1 Each holder of Series E Preferred Stock shall be entitled to receive with respect to each share of Series E Preferred Stock then outstanding and held by such holder of Series E Preferred Stock, dividends, commencing from the date of issuance of such share of Series E Preferred Stock, at the Initial Dividend Rate (as defined below) per annum (on the basis of a 360 day year) of the Series E Original Issue Price (as defined below) (the “**Series E Preferred Dividends**”); provided, however, that subject to and effective upon the filing with the Delaware Secretary of State of the amendment to the Certificate of Designations, Preferences and Rights of Series D Preferred Stock (the “**Series D Certificate of Designations**,” with the amendment thereto being referred to as the “**Amendment to Series D Certificate of Designations**”) as described in Section 5.11(B) of that certain Convertible Preferred Stock and Warrant Purchase Agreement, dated November 9, 2012, between the Corporation and the purchasers of the Series E Preferred Stock therein (the “**Series E Purchase Agreement**”), the dividend rate provided for in this Section 1.1 shall be increased from the Initial Dividend Rate to the rate of eight percent (8%) per annum (on the basis of a 360 day year) of the Series E Original Issue Price. The Series E Preferred Dividends shall be cumulative, whether or not earned or declared, shall be paid quarterly in arrears on the last day of March, June, September and December (a “**Quarterly Dividend Payment Date**”) in each year that Series E Preferred Stock is outstanding, with the first Quarterly Dividend Payment Date being March 31, 2013, and shall be prorated for periods shorter than one

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quarter. Notwithstanding the foregoing, if, as of any Quarterly Dividend Payment Date at which the dividend rate is the Initial Dividend Rate, there are no shares of the Corporation's Series D Convertible Preferred Stock outstanding, then the dividend payable on such Quarterly Dividend Payment Date shall be calculated and paid at a rate of eight percent (8%) per annum (on the basis of a 360 day year) of the Series E Original Issue Price. In the event that the Amendment to Series D Certificate of Designations is filed with the Delaware Secretary of State and the dividend rate with respect to the Series E Preferred Dividends is increased pursuant to this Section 1.1, the Series E Preferred Dividends paid on the first Quarterly Dividend Payment Date after such filing and increase shall be paid at the increased rate. In the event that the Amendment to Series D Certificate of Designations is submitted to the stockholders of the Corporation as contemplated by Section 5.11 of the Series E Purchase Agreement and the Amendment to Series D Certificate of Designations is not approved, then the holders of the Series E Preferred Stock shall no longer be entitled to any Series E Preferred Dividends under this Section 1.1 and the Corporation shall have no further obligation to pay the Series E Preferred Dividends under this Section 1.1; provided, however, the Corporation shall not submit the Amendment to the Series D Certificate of Designations to the stockholders if there are no shares of Series D Preferred Stock then outstanding. The rights of a holder of Series E Preferred Stock to Series E Preferred Dividends shall rank senior to the rights of the Corporation's Series A Convertible Preferred Stock and Series D Convertible Preferred Stock as to dividends. The Series E Preferred Dividends shall be paid to each holder of Series E Preferred Stock in cash out of legally available funds. The term "**Initial Dividend Rate**" shall mean four and six tenths percent (4.6%) or such other percentage approved by the Corporation and by the holders of at least a majority of then outstanding shares of Series E Preferred Stock, with such approval given in writing or by vote at a meeting, consenting or voting (as the case may be) as a separate class.

1.2 Notwithstanding the foregoing, if any Series E Preferred Dividend is not paid by the Corporation within five trading days following a Quarterly Dividend Payment Date, such Series E Preferred Dividend shall continue to accrue and the Corporation shall be obligated to pay the holders a late fee with respect to such Series E Preferred Dividend, which shall be paid by the Corporation in cash, at the rate of sixteen percent (16%) per annum (or such lesser rate permitted by applicable law) (the "**Dividend Late Fee**"), and shall accrue daily from the applicable Quarterly Dividend Payment Date through and including the date the Corporation pays such Series E Preferred Dividend plus the Dividend Late Fee in full (which amount shall be paid as liquidated damages and not as a penalty); provided however, that no Dividend Late Fee shall accrue or be owed with respect to any Series E Preferred Dividend that the Corporation is not permitted to pay under Delaware law.

1.3 The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than dividends on shares of the Corporation's Common Stock, par value \$0.001 per share (the "**Common Stock**") payable in shares of Common Stock, dividends on the Series A Convertible Preferred Stock in accordance with Section 2(a) of the Certificate of Designations, Preferences and Rights of Series A Convertible Preferred Stock (the "**Series A Certificate of Designations**"), dividends on the Series D Convertible Preferred Stock in accordance with Section 1.1 of the Series D Certificate of

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Designations and such dividends on other series or classes of the capital stock of the Corporation as are approved for this exclusion by the holders of at least a majority of the then outstanding shares of Series E Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) as a separate class, unless the holders of the Series E Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Series E Preferred Stock in an amount at least equal to the sum of (i) the amount of the aggregate dividends then accrued on such share of Series E Preferred Stock and not previously paid and (ii) (A) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of Series E Preferred Stock as would equal the product of (1) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock and (2) the number of shares of Common Stock issuable upon conversion of a share of Series E Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend or (B) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of Series E Preferred Stock determined by (1) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series) and (2) multiplying such fraction by an amount equal to the Series E Original Issue Price; provided that, if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of Series E Preferred Stock pursuant to this Section 1.3 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest Series E Preferred Stock dividend.

1.4 The “**Series E Original Issue Price**” shall mean \$14.00 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series E Preferred Stock.

## 2. Liquidation, Dissolution or Winding Up; Sale of the Corporation.

### 2.1 Payments to Holders of Series E Preferred Stock Upon Liquidation.

2.1.1 In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, the holders of shares of Series E Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Common Stock, Series A Convertible Preferred Stock, Series D Convertible Preferred Stock or any other class of capital stock of the Corporation ranking junior to the Series E Preferred Stock as to liquidation, by reason of their ownership thereof, an amount per share equal to the greater of (i) the Series E Original Issue Price, plus any dividends accrued or declared but unpaid thereon, and (ii) such amount per share as would have been payable with respect to such share had all shares of Series E Preferred Stock been converted into Common Stock pursuant to Subsection 4 immediately prior to such liquidation, dissolution or winding up disregarding for these purposes the limitations on conversion due to beneficial ownership set forth in Subsection 4.1.2.

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2.1.2 If upon any such liquidation, dissolution or winding up of the Corporation, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Series E Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1, the holders of shares of Series E Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.2 Payments to Holders of Common Stock Upon Liquidation. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, after the payment of all preferential amounts required to be paid to the holders of shares of Series E Preferred Stock and subject to any other distribution that may be required with respect to any other series of Preferred Stock, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of shares of Common Stock and any class or series of capital stock that participates with the Common Stock in such distributions.

2.3 Sale of the Corporation.

2.3.1 In the event of a Sale of the Corporation (as defined below) after payment shall be made to the holders of Series A Convertible Preferred Stock, Series D Convertible Preferred Stock and any other class of capital stock of the Corporation ranking senior to the Series E Preferred Stock upon a Sale of the Corporation, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of the shares of Series E Preferred Stock and Common Stock pro rata based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to Common Stock pursuant to the terms of the Certificate of Incorporation immediately prior to such Sale of the Corporation disregarding for these purposes the limitations on conversion due to beneficial ownership set forth in Subsection 4.1.2.

2.3.2 The term “**Sale of the Corporation**” shall mean each of the following events: (a) a merger or consolidation in which (i) the Corporation is a constituent party or (ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation (except in the case of clause (i) and (ii), any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, at least a majority, by voting power, of the capital stock of (y) the surviving or resulting corporation or (z) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or (b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole, or the sale or disposition (whether by merger or otherwise) of one or more subsidiaries of the Corporation if substantially all of the assets of the

Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Corporation. For the purposes of clarity, a Sale of the Corporation shall not be deemed to be a liquidation, dissolution or winding up of the Corporation for the purposes of this Section 2.

3. Voting.

3.1 Unless and until the stockholders of the Corporation approve the Nasdaq Proposal (as defined by and in accordance with Section 5.11(B) of the Series E Purchase Agreement), the holders of the Series E Preferred Stock shall have no voting rights with respect to any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation or otherwise, except as otherwise required by applicable law or regulation. Subject to and effective upon the date that the stockholders of the Corporation approve the Nasdaq Proposal, on any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation, each holder of outstanding shares of Series E Preferred Stock shall be entitled to cast a number of votes equal to the lesser of (a) the number of whole shares of Common Stock into which the shares of Series E Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter and (b) the product of the Voting Adjustment Percentage (as defined below) multiplied by the number of whole shares of Common Stock into which the shares of Series E Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of the Certificate of Incorporation, holders of Series E Preferred Stock shall vote together, as a single class, with the holders of Common Stock, Series D Convertible Preferred Stock and any other series or class of the stock of the Corporation that votes together with the holders of Common Stock. The “**Voting Adjustment Percentage**” is determined in accordance with the formula below:

$$X = \left( \frac{\left( 35\%((A - B) \div 65\%) \right) - B}{C} \right)$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) “A” shall mean the number of shares of Common Stock then issued and outstanding plus the number of shares of Common Stock then issuable upon conversion of the Series D Preferred Stock then issued and outstanding and any other series of Preferred Stock (other than the Series E Preferred Stock) then issued and outstanding, and entitled to vote on any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation;

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(b) “B” shall mean the number of shares of Common Stock then issued and outstanding plus the number of shares of Common Stock then issuable upon conversion of the Series D Preferred Stock then issued and outstanding and any other series of Preferred Stock (other than the Series E Preferred Stock) then issued and outstanding, and entitled to vote on any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation, in each case held by any holders of Series E Preferred Stock or an affiliate of any holders of Series E Preferred Stock;

(c) “C” shall mean the number of shares of Common Stock then issuable upon conversion of the Series E Preferred Stock then issued and outstanding; and

(d) “X” shall mean the Voting Adjustment Percentage.

3.2 Series E Preferred Stock Protective Provisions. At any time when at least 84,849 shares of Series E Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series E Preferred Stock) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of the holders of at least 51% of the then outstanding shares of Series E Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) as a separate class, and any such act or transaction entered into without such consent or vote shall be null and void ab initio, and of no force or effect:

3.2.1 amend, alter or repeal any provision of the Certificate of Incorporation or bylaws of the Corporation in a manner that adversely and uniquely affects the powers, preferences or rights of the Series E Preferred Stock;

3.2.2 purchase or redeem (or permit any subsidiary to purchase or redeem) or pay or declare any dividend or make any distribution on, any shares of capital stock of the Corporation other than (i) redemptions of or dividends or distributions on the Series A Preferred Stock and Series D Preferred Stock, (ii) dividends or other distributions payable on the Common Stock solely in the form of additional shares of Common Stock, (iii) repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Corporation or any subsidiary in connection with the cessation of such employment or service at the lower of the original purchase price or the then-current fair market value thereof pursuant to agreements between such persons and the Corporation or (iv) redemptions under Subsection 5 below; or

3.2.3 recapitalize or reclassify any of the Common Stock.



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#### 4. Optional Conversion.

The holders of the Series E Preferred Stock shall have conversion rights as follows (the “**Conversion Rights**”):

##### 4.1 Right to Convert.

4.1.1 Termination of Conversion Rights. In the event of a notice of redemption of any shares of Series E Preferred Stock pursuant to Subsection 5, the Conversion Rights of the shares designated for redemption shall terminate at the close of business on the last full day preceding the date fixed for redemption, unless the redemption price is not fully paid on such redemption date, in which case the Conversion Rights for such shares shall continue until such price is paid in full. In the event of a liquidation, dissolution or winding up of the Corporation or a Sale of the Corporation, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Series E Preferred Stock.

4.1.2 Conversion Ratio. Each share of Series E Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing the Series E Original Issue Price by the Series E Conversion Price (as defined below) in effect at the time of conversion. The “**Series E Conversion Price**” shall initially be equal to \$0.70. Such initial Series E Conversion Price, and the rate at which shares of Series E Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below. Notwithstanding the foregoing, the Corporation shall not effect any conversion of such holder’s Series E Preferred Stock and such holder shall not be entitled to convert its shares of Series E Preferred Stock for a number of shares of Common Stock in excess of that number of shares of Common Stock which, upon giving effect to such conversion, would cause (a) the aggregate number of shares of Common Stock beneficially owned by a holder of Series E Preferred Stock and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the holder’s for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”) to exceed 19.99% of the total number of issued and outstanding shares of Common Stock of the Corporation (including for such purpose the shares of Common Stock issuable upon conversion of the Series E Preferred Stock) following such conversion, or (b) the combined voting power of the securities of the Corporation beneficially owned by a holder of Series E Preferred Stock and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the holder’s for purposes of Section 13(d) of the Exchange Act to exceed 19.99% of the combined voting power of all of the securities of the Corporation then outstanding following such conversion, unless, in either case, the stockholders of the Corporation approve the Nasdaq Proposal, in which case, the 19.99% limitation under clause (a) and clause (b) of this Section 4.1.2 shall be increased, with respect to any holder of Series E Preferred Stock, to 35% for purposes of both clause (a) and clause (b) of this Section 4.1.2. For purposes of this Section 4.1.2, the aggregate number of shares of Common Stock or voting securities beneficially owned by the holder and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the holder’s for purposes of Section 13(d) of the

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Exchange Act shall include the shares of Common Stock issuable upon the conversion of the Series E Preferred Stock with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon exercise or conversion of the unexercised, non-converted or non-cancelled portion of any other securities of the Corporation that do not have voting power (including without limitation any securities of the Corporation which would entitle the holder thereof to acquire at any time Common Stock, including without limitation any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock), subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the holder or any of its affiliates and other persons whose beneficial ownership of Common Stock would be aggregated with the holder's for purposes of Section 13(d) of the Exchange Act.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Series E Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the Market Price of a share of Common Stock. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Series E Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion. The "**Market Price**" of the Common Stock shall be determined as follows: if the Common Stock is listed on a national securities exchange or another nationally recognized trading system, the Market Price per share of Common Stock shall be deemed to be the greater of (a) the 20 consecutive trading day average closing price per share of the Common Stock ending on the trading day immediately prior to the date of determination and (b) the closing price of the Common Stock on the trading day immediately prior to the date of determination; and if the Common Stock is not listed on a national securities exchange or another nationally recognized trading system, the Market Price per share of Common Stock shall be deemed to be the amount most recently determined by the Board to represent the fair market value per share of the Common Stock (including without limitation a determination for purposes of granting Common Stock options or issuing Common Stock under any plan, agreement or arrangement with employees of the Corporation). Upon request of a holder of Series E Preferred Stock, the Board (or a representative thereof) shall, as promptly as reasonably practicable but in any event not later than 10 days after such request, notify the holder of the Market Price and furnish the holder with reasonable documentation of the Board's determination of such Market Price. Notwithstanding the foregoing, if the Board has not made such a determination within the three-month period prior to the date of determination, then the Board shall make, and shall provide or cause to be provided to the holder notice of, a determination of the Market Price within 15 days of a request by the holder that it do so.

#### 4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Series E Preferred Stock to voluntarily convert shares of Series E Preferred Stock into shares of Common Stock, such holder shall surrender the certificate or certificates for such shares of Series E Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Series E Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent), together with written notice that such holder elects to convert all or any number of the shares of the Series E Preferred Stock represented by such certificate or certificates and, if applicable, any event on which such conversion is contingent. Such notice shall state such holder's name or the names of the nominees in which such holder wishes the certificate or certificates for shares of Common Stock to be issued. If required by the Corporation, certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such certificates (or lost certificate affidavit and agreement) and notice shall be the time of conversion (the "**Conversion Time**"), and the shares of Common Stock issuable upon conversion of the shares represented by such certificate shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time, (i) issue and deliver to such holder of Series E Preferred Stock, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of Series E Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and (iii) subject to applicable law, pay all accrued or declared but unpaid dividends on the shares of Series E Preferred Stock converted.

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4.3.2 Reservation of Shares. The Corporation shall at all times when the Series E Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Series E Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Series E Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Series E Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to the Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Series E Conversion Price below the then par value of the shares of Common Stock issuable upon conversion of the Series E Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and nonassessable shares of Common Stock at such adjusted Series E Conversion Price.

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4.3.3 Effect of Conversion. All shares of Series E Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends accrued or declared but unpaid thereon. Any shares of Series E Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Series E Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Series E Conversion Price shall be made for any declared but unpaid dividends on the Series E Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Series E Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Series E Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

4.4 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series E Original Issue Date effect a subdivision of the outstanding Common Stock, the Series E Conversion Price in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Series E Original Issue Date combine the outstanding shares of Common Stock, the Series E Conversion Price in effect immediately before the combination shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.5 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series E Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such

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event the Series E Conversion Price in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Series E Conversion Price then in effect by a fraction:

- (1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and
- (2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing, (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Series E Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Series E Conversion Price shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) no such adjustment shall be made if the holders of Series E Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Series E Preferred Stock had been converted into Common Stock on the date of such event.

4.6 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series E Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Subsection 1 do not apply to such dividend or distribution, then and in each such event the holders of Series E Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Series E Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.3, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Series E Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.5 or 4.6), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Series E Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to

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such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of Series E Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of the Series E Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Series E Conversion Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Series E Preferred Stock.

4.8 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Series E Conversion Price pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than 10 days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of Series E Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which the Series E Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of Series E Preferred Stock (but in any event not later than 10 days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Series E Conversion Price then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of Series E Preferred Stock.

4.9 Notice of Record Date. In the event:

(a) the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Series E Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or

(b) of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, or any consolidation or merger of the Corporation; or

(c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation,

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Series E Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Series E Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the Series E Preferred Stock and the Common Stock. Such notice shall be sent at least 10 days prior to the record date or effective date for the event specified in such notice.

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## 5. Redemption by Corporation.

5.1 **Redemption.** Shares of Series E Preferred Stock may be redeemed by the Corporation out of funds lawfully available therefor at a price equal to the Series E Original Issue Price per share, plus all accrued or declared but unpaid dividends thereon (the “**5.1 Redemption Price**”), at any time after the later of (i) November 9, 2014 and (ii) the date that no shares of Series D Preferred Stock remain outstanding, if the closing sales price of the Common Stock for 20 or more trading days in a period of 30 consecutive trading days is equal to or greater than 400% of the Series E Conversion Price; provided, that the Corporation provides written notice of such redemption to each holder of Series E Preferred Stock within 30 days of the end of such 30 consecutive trading day period (the “**5.1 Redemption Notice**”). The Corporation shall send the 5.1 Redemption Notice to each holder of record of Series E Preferred Stock not less than 30 days prior to the date fixed by the Corporation for such redemption (the “**5.1 Redemption Date**”). The 5.1 Redemption Notice shall state:

(a) the 5.1 Redemption Date and the 5.1 Redemption Price;

(b) the date upon which the holder’s right to convert such shares terminates (as determined in accordance with Subsection 4.1); and

(c) that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Series E Preferred Stock to be redeemed pursuant to this Section 5.1.

Notwithstanding anything to the contrary set forth in this Section 5, the Corporation may not exercise its right of redemption pursuant to this Section 5.1 with respect to any shares of Series E Preferred Stock which the holder thereof may not convert into Common Stock pursuant to Subsection 4.1 as a result of the beneficial ownership limitations set forth therein (each such share, a “**Nonredeemable Series E Share**” and collectively, the “**Nonredeemable Series E Shares**”).

5.2 **Alternative Redemption.** In the event that the Corporation exercises its redemption rights under Subsection 5.1 but is unable to redeem all of the shares of Series E Preferred Stock in accordance with the last sentence of Subsection 5.1, then the Corporation may redeem all or a portion of the Nonredeemable Series E Shares at a price per Nonredeemable Series E Share equal to the greater of (a) the 20 consecutive trading day average closing price per share of the Common Stock ending on the trading day immediately prior to the 5.1 Redemption Date plus any dividends accrued or declared but unpaid thereon and (b) the Series E Conversion Price plus any dividends accrued or declared but unpaid thereon (the “**5.2 Redemption Price**” and, together with the 5.1 Redemption Price, the “**Redemption Prices**”); provided, that the Corporation provides written notice of such redemption to each holder of Series E Preferred Stock within 30 days following the 5.1 Redemption Date (the “**5.2 Redemption Notice**” and, together with the 5.1 Redemption Notice, the “**Redemption Notices**”). The Corporation shall send the 5.2 Redemption Notice to each holder of record of Series E Preferred Stock not less than 30 days prior to the date fixed by the Corporation for such redemption (the “**5.2 Redemption Date**” and, together with the 5.1 Redemption Date, the “**Redemption Dates**”).

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The 5.2 Redemption Notice shall state:

- (a) the 5.2 Redemption Date and the 5.2 Redemption Price;
- (b) the number of Nonredeemable Series E Shares (as determined in accordance with Subsection 4.1); and

(c) that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the Nonredeemable Series E Shares of Series E Preferred Stock to be redeemed pursuant to this Section 5.2.

5.3 Surrender of Certificates: Payment. On or before a Redemption Date, each holder of shares of Series E Preferred Stock to be redeemed on such Redemption Date, unless such holder has exercised his, her or its right to convert such shares as provided in Subsection 4, shall surrender the certificate or certificates representing such shares (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the notice from the Corporation, and thereupon the applicable Redemption Price for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof. In the event less than all of the shares of Series E Preferred Stock represented by a certificate are redeemed, a new certificate representing the unredeemed shares of Series E Preferred Stock shall promptly be issued to such holder.

5.4 Rights Subsequent to Redemption. If a Redemption Notice shall have been duly given, and if on the applicable Redemption Date the applicable Redemption Price payable upon redemption of the shares of Series E Preferred Stock to be redeemed on such Redemption Date is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor in a timely manner, then notwithstanding that the certificates evidencing any of the shares of Series E Preferred Stock so called for redemption on such Redemption Date shall not have been surrendered, dividends with respect to such shares of Series E Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after such Redemption Date terminate, except only the right of the holders to receive the applicable Redemption Price without interest upon surrender of their certificate or certificates therefor.



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5.5 Redemption Approval. Notwithstanding anything to the contrary set forth in this Section 5, no redemptions may be effected by the Corporation pursuant to Subsection 5.1 or Subsection 5.2 unless and until such redemption has been approved by a majority in number of the directors of the Corporation that are not affiliated with any holder of the Series E Preferred Stock or the Warrants (as defined in the Series E Purchase Agreement) and were not elected as a director of the Corporation as a result of being nominated or submitted for consideration by any holder of the Series E Preferred Stock or Warrants or any affiliate thereof.

6. Redeemed or Otherwise Acquired Shares. Any shares of Series E Preferred Stock that are redeemed or otherwise acquired (including pursuant to Subsection 5.4) by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Series E Preferred Stock following redemption.

7. Waiver. Any of the rights, powers, preferences and other terms of the Series E Preferred Stock set forth herein may be waived on behalf of all holders of Series E Preferred Stock by the affirmative written consent or vote of the holders of at least a majority of the then outstanding Series E Preferred Stock.

8. Notices. Any notice required or permitted to be given to a holder of shares of Series E Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

**IN WITNESS WHEREOF**, this Certificate of Designations has been executed by a duly authorized officer of this corporation on this 9th day of November, 2012.

By: /s/ Sudhir Agrawal  
Chief Executive Officer

**IDERA PHARMACEUTICALS, INC.**

**CONVERTIBLE PREFERRED STOCK AND WARRANT PURCHASE AGREEMENT**

**November 9, 2012**

This Convertible Preferred Stock and Warrant Purchase Agreement (this "AGREEMENT") is entered into as of the date set forth above by and among Idera Pharmaceuticals, Inc., a Delaware corporation (the "COMPANY"), and the undersigned purchasers (each a "PURCHASER" and collectively, the "PURCHASERS") set forth on the Schedule of Purchasers attached hereto as Exhibit A (the "SCHEDULE OF PURCHASERS"). The parties hereby agree as follows:

**ARTICLE 1**

**AUTHORIZATION AND SALE OF SECURITIES**

1.1 Authorization. The Company has duly authorized the sale and issuance to the Purchasers, at the Closing (as defined in Section 2.1 below) and pursuant to the terms and conditions hereof, of (i) up to 424,242 shares (the "SHARES") of its Series E Convertible Preferred Stock, par value \$0.01 per share (the "SERIES E PREFERRED STOCK"), and (ii) warrants to purchase up to 8,484,840 shares of its common stock, par value \$0.001 per share (the "COMMON STOCK") in the form attached hereto as Exhibit B (the "WARRANTS"). The Series E Preferred Stock shall have the rights, privileges, preferences and restrictions set forth in the Certificate of Designations, Preferences and Rights of Series E Preferred Stock attached hereto as Exhibit C (the "CERTIFICATE OF DESIGNATIONS"). The Company has, or before the Closing will have adopted and filed the Certificate of Designations with the Secretary of State of the State of Delaware.

1.2 Sale of Securities. Subject to the terms and conditions hereof, at the Closing the Company will issue and sell to each Purchaser, and each Purchaser agrees, severally and not jointly, to purchase from the Company, the number of Shares set forth opposite such Purchaser's name on the Schedule of Purchasers, at a purchase price of \$14.00 per share, and Warrants to purchase the number of shares of Common Stock set forth opposite such Purchaser's name on the Schedule of Purchasers, at a purchase price of \$0.125 per Warrant Share, and for the aggregate purchase price set forth thereon. Payment of the purchase price for the Shares and the Warrants will be made by the Purchasers by wire transfer in same day funds.

**ARTICLE 2**

**CLOSING**

2.1 Closing. Subject to the terms and conditions of this Agreement, the closing (the "CLOSING") of the sale and purchase of the Shares and the Warrants under this Agreement shall take place at the offices of WilmerHale, 60 State Street, Boston, MA 02109 (or remotely via the exchange of documents and signatures) on the date of this Agreement (the "CLOSING DATE"). At the Closing:

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(A) the Company and the Purchasers shall execute and deliver the Registration Rights Agreement in the form attached hereto as Exhibit D (the “REGISTRATION RIGHTS AGREEMENT” and together with this Agreement and the Warrants, the “TRANSACTION DOCUMENTS”);

(B) the Company shall deliver to the Purchasers certificates, as of the most recent practicable dates, (i) as to the corporate good standing of the Company issued by the Secretary of State of the State of Delaware and (ii) as to the due qualification of the Company as a foreign corporation issued by the Secretary of State of the Commonwealth of Massachusetts;

(C) the Company shall deliver to the Purchasers the certificate of incorporation of the Company, as amended and in effect as of the Closing Date (including the Certificate of Designations), certified by the Secretary of the State of the State of Delaware;

(D) the Company shall deliver to the Purchasers a Certificate of the Secretary of the Company attesting as to (i) the bylaws of the Company; (ii) the signatures and titles of the officers of the Company executing this Agreement or any of the other agreements to be executed and delivered by the Company at the Closing; and (iii) resolutions of the Board of Directors of the Company (the “BOARD”) authorizing and approving all matters in connection with this Agreement and the transactions contemplated hereby;

(E) WilmerHale, counsel for the Company, shall deliver to the Purchasers an opinion, dated the Closing Date, in substantially the form attached hereto as Exhibit E;

(F) the Company shall deliver to each of the Purchasers a certificate for the number of Shares set forth opposite such Purchaser’s name under the heading “Shares” on the Schedule of Purchasers and Warrants to purchase the number of shares of Common Stock set forth opposite such Purchaser’s name under the heading “Warrants” on the Schedule of Purchasers, in each case registered in the name of such Purchaser; and

(G) each Purchaser shall pay to the Company, by wire transfer of immediately available funds the aggregate purchase price set forth opposite such Purchaser’s name under the heading “Purchase Price” on the Schedule of Purchasers for the Shares and the Warrants being purchased by such Purchaser at the Closing. The Closing shall not be deemed to occur, and all such payments by any Purchaser shall be deemed to be held in escrow, until all Purchasers listed on the Schedule of Purchasers have tendered to the Company the payment indicated thereon.

### ARTICLE 3

#### REPRESENTATIONS AND WARRANTIES OF THE COMPANY

The Company hereby represents and warrants to each Purchaser as of the date hereof that except as set forth in the Exchange Act Reports (as defined in Section 3.13):

3.1 Organization and Qualification. The Company is a corporation duly incorporated, validly existing and in good standing under the laws of the State of Delaware. The Company is qualified to do business as a foreign corporation in each jurisdiction in which the failure to so qualify would have a Material Adverse Effect. For purposes of this Agreement, the term “MATERIAL ADVERSE EFFECT” shall mean a material adverse effect upon the business, financial condition, properties or results of operations of the Company.

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3.2 Authorized Capital Stock. Immediately prior to Closing, the Company will have (i) authorized 140,000,000 shares of Common Stock, of which 27,641,229 shares of Common Stock were outstanding as of October 15, 2012 and (ii) authorized 5,000,000 shares of Preferred Stock, \$0.01 par value per share ("PREFERRED STOCK"), of which 1,500,000 shares have been designated Series A Convertible Preferred Stock, 655 shares of which are outstanding, 200,000 shares have been designated Series C Junior Participating Preferred Stock, none of which are outstanding, 1,124,260 shares have been designated Series D Convertible Preferred Stock, 1,124,260 shares of which are outstanding, and 424,242 shares have been designated Series E Preferred Stock. The issued and outstanding shares of the Common Stock and Preferred Stock have been duly authorized and validly issued, are fully paid and nonassessable, have been issued in compliance in material respects with all federal and state securities laws, were not issued in violation of any preemptive rights or other rights to subscribe for or purchase securities granted by the Company, and conform (except with respect to the number of authorized, issued and outstanding shares) in all material respects to the description thereof contained in the Exchange Act Reports or in any Registration Statement on Form 8-A filed with the Securities and Exchange Commission (the "COMMISSION" or the "SEC") by the Company. Except as disclosed in the Exchange Act Reports (including options granted under plans described in the Exchange Act Reports), the Company does not have outstanding any options to purchase, or any preemptive rights or other rights to subscribe for or to purchase, any securities or obligations convertible into, or any contracts or commitments requiring the Company to issue or sell, shares of its capital stock or any such options, rights, convertible securities or obligations.

3.3 Issuance, Sale and Delivery of the Shares. The Shares, when issued, delivered and paid for in the manner set forth in this Agreement, will be validly issued, fully paid and nonassessable and free and clear of all pledges, liens, and encumbrances imposed by the Company (other than restrictions on transfer under state and/or federal securities laws). The Common Stock issuable upon conversion of the Shares (the "CONVERSION SHARES") or upon exercise of the Warrants (the "WARRANT SHARES," and collectively with the Shares, the Warrants and the Conversion Shares, the "SECURITIES"), have been duly reserved for issuance, and when issued, delivered and, in the case of the Warrant Shares, paid for, will be validly issued, fully paid and nonassessable and free and clear of all pledges, liens, and encumbrances imposed by the Company (other than restrictions on transfer under state and/or federal securities laws). Except as set forth in that certain Convertible Preferred Stock and Warrant Purchase Agreement, dated November 4, 2011, between the Company and the purchasers named therein, no preemptive rights or other rights to subscribe for or purchase from the Company exist with respect to the issuance and sale of the Securities by the Company pursuant to this Agreement. Except as disclosed in the Exchange Act Reports, no stockholder of the Company has any right (which has not been waived or has not expired by reason of lapse of time following notification of the Company's intent to file the registration statement to be filed by it pursuant to the Registration Rights Agreement (the "REGISTRATION STATEMENT")) to require the Company to register the sale of any shares owned by such stockholder under the Securities Act of 1933, as amended (the "SECURITIES ACT") in the Registration Statement.

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3.4 Due Execution, Delivery and Performance of this Agreement. The Company has full legal right, corporate power and authority to enter into the Transaction Documents and consummate the transactions contemplated hereby and thereby. The Transaction Documents have been duly authorized, executed and delivered by the Company. The execution and delivery of the Transaction Documents by the Company and the consummation by the Company of the transactions contemplated herein and therein: (i) will not violate any provision of the certificate of incorporation or bylaws of the Company, (ii) will not result in the creation of any lien, charge, security interest or encumbrance upon any assets of the Company pursuant to the terms or provisions of, and will not conflict with, result in the breach or violation of, or constitute, either by itself or upon notice or the passage of time or both, a default under any agreement, lease, franchise, license, permit or other instrument to which the Company is a party or by which the Company or any of its properties are bound, except, in each case, for any lien, charge, security interest, encumbrance, conflict, breach, violation or default which would not have a Material Adverse Effect, or (iii) conflict with or result in the violation of any statute or any judgment, decree, order, rule or regulation of any court or any regulatory body, administrative agency or other governmental body applicable to the Company or any of its properties except for any such conflict or violation which would not have a Material Adverse Effect. Assuming the accuracy of the representations made by the Purchasers in Article 4, no consent, approval, authorization or other order of any court, regulatory body, administrative agency or other governmental body is required for the execution and delivery by the Company of the Transaction Documents or the consummation by the Company of the transactions contemplated by the Transaction Documents, except for the filing of the Certificate of Designations, compliance with the blue sky laws and federal securities laws, the listing of the Conversion Shares and the Warrant Shares on the Nasdaq Global Market and the filing of the Registration Statement. Upon the execution and delivery of the Transaction Documents, and assuming the valid execution thereof by the Purchasers, each Transaction Document will constitute a valid and binding obligation of the Company, enforceable against it in accordance with their respective terms, except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance or similar laws affecting creditors' and contracting parties' rights generally and except as enforceability may be subject to general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law) and except to the extent enforcement of the indemnification obligations of the Company set forth in the Registration Rights Agreement may be limited by federal or state securities laws or the public policy underlying such laws.

3.5 Accountants. The firm of Ernst & Young LLP, which has expressed its opinion with respect to the financial statements to be included or incorporated by reference in the Registration Statement and the prospectus which forms a part thereof, is an independent accountant as required by the Securities Act.

3.6 No Defaults. The Company is not in violation or default of any provision of its certificate of incorporation or bylaws, or in breach of or default with respect to any provision of any agreement, judgment, decree, order, lease, franchise, license, permit or other instrument to which it is a party or by which it or any of its properties are bound except for any violation or default that would not have a Material Adverse Effect.

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3.7 Contracts. There is no material contract or agreement required by the Securities Exchange Act of 1934, as amended (the "EXCHANGE ACT") to be described in or filed as an exhibit to the Exchange Act Reports which is not described or filed therein as required. Any contracts filed as exhibits to the Exchange Act Reports that are material to the Company are in full force and effect on the date hereof (except to the extent they have expired by their terms subsequent to the date of the Exchange Act Reports).

3.8 No Actions. Except as disclosed in the Exchange Act Reports, (1) there are no legal or governmental actions, suits or proceedings pending and (2) to the Company's knowledge, there are no inquiries or investigations pending, or any legal or governmental actions, suits, or proceedings threatened in writing, against the Company or of which property owned or leased by the Company is or may be the subject (it being understood that the interaction between the Company and the United States Food and Drug Administration and such comparable governmental bodies relating solely to the clinical development and product approval process shall not be deemed proceedings for purposes of this representation), or related to environmental or discrimination matters, which actions, suits or proceedings, individually or in the aggregate, would have a Material Adverse Effect. No labor disturbance by the employees of the Company exists or, to the Company's knowledge, is imminent which would have a Material Adverse Effect. The Company is not party to or named as subject to the provisions of any injunction, judgment, decree or order of any court, regulatory body, administrative agency or other governmental body specifically naming the Company that would have a Material Adverse Effect.

3.9 No Material Change. Since June 30, 2012, and except as described in the Exchange Act Reports or as disclosed to the Purchasers:

(A) the Company has not incurred any material liabilities or obligations, indirect, or contingent, or entered into any material oral or written agreement or other transaction, which was not incurred or entered into in the ordinary course of business;

(B) the Company has not sustained any material loss or interference with its business or properties from fire, flood, windstorm, accident or other calamity not covered by insurance;

(C) except for dividends on shares of the Company's Series D Convertible Preferred Stock paid in accordance with the Series D Certificate of Designations, Preferences and Rights of Series D Preferred Stock (the "SERIES D CERTIFICATE OF DESIGNATIONS"), the Company has not paid or declared any dividends or other distributions with respect to its capital stock and the Company is not in default in the payment of principal or interest on any outstanding debt obligations;

(D) there has not been any material change or amendment to a contract filed as an exhibit to an Exchange Act Report that is material to the Company;

(E) there has not been any sale, assignment or transfer of all or substantially all of the Company's rights in any patents, trademarks, copyrights, trade secrets or other intangible assets or other material assets, except a sale, assignment or transfer made in the ordinary course of business that is not material to the assets, properties, financial condition, operating results or business of the Company;

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(F) there has not been any waiver by the Company of a material debt owed to it;

(G) there has not been any material change in any compensation arrangement or agreement with any officer or director;

(H) there has not been any agreement or commitment by the Company to do any of the acts described in subsections (A) through (G) above; and

(I) there has not been any event which has caused a Material Adverse Effect other than continued incurrence of operating losses incurred in the ordinary course of the Company's business.

3.10 Intellectual Property. Except as disclosed in the Exchange Act Reports, (i) to the Company's knowledge, the Company owns or has the right to use the inventions, patent applications, patents, trademarks (both registered and unregistered), trade names, copyrights and trade secrets used by it in or necessary for the conduct of the Company's business (collectively, the "COMPANY INTELLECTUAL PROPERTY"), except where such failure to own or have the right to use such intellectual property would not have a Material Adverse Effect; and (ii) (a) to the Company's knowledge, there are no third parties who have any ownership rights to any Company Intellectual Property that would preclude the Company from conducting its business as currently conducted and have a Material Adverse Effect, except for the ownership rights of the owners of the Company Intellectual Property licensed by the Company; (b) to the Company's knowledge, there are currently no sales of any products or any other uses that would constitute an infringement by third parties of any Company Intellectual Property, which infringement would have a Material Adverse Effect; (c) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others challenging the rights of the Company in or to any Company Intellectual Property, which action, suit, proceeding or claim would have a Material Adverse Effect; (d) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others challenging the validity or scope of any Company Intellectual Property, which action, suit, proceeding or claim would have a Material Adverse Effect; and (e) there is no pending or, to the Company's knowledge, threatened action, suit, proceeding or claim by others that the Company infringes or otherwise violates any patent, trademark, copyright, trade secret or other proprietary right (an "INTELLECTUAL PROPERTY RIGHT") of others, which action, suit, proceeding or claim would have a Material Adverse Effect. To the knowledge of the Company, the Company does not infringe any Intellectual Property Rights of any other person. The Company has not entered into any consent agreements, forbearance to sue or settlement agreements with respect to the validity of the Company's ownership or right to use Company Intellectual Property. The Company has complied, in all material respects, with its contractual obligations relating to the protection of the Company Intellectual Property used pursuant to licenses. All former or current employees, officers and consultants of the Company have entered into agreements with the Company providing for the assignment of inventions to the Company, except where the failure to have entered into an agreement with an employee, officer or consultant would not have a Material Adverse Effect.

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3.11 Compliance. The Company is conducting its business in compliance with all applicable laws, rules and regulations of the jurisdictions in which it is conducting its business, including, without limitation, all applicable local, state and federal environmental laws and regulations, except where failure to be so in compliance would not have a Material Adverse Effect.

3.12 Investment Company. The Company is not an “investment company” or an “affiliated person” of, or “promoter” or “principal underwriter” for an investment company, within the meaning of the Investment Company Act of 1940, as amended.

3.13 Disclosure. The information contained in the following documents did not, as of the date of the applicable document, include any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances in which they were made, not misleading, as of their respective dates:

(A) the Company’s Annual Report on Form 10-K for the year ended December 31, 2011;

(B) the Company’s Quarterly Reports on Form 10-Q for the quarters ended March 31, 2012 and June 30, 2012;

(C) all other documents, if any, filed by the Company with the Commission since December 31, 2011 pursuant to the reporting requirements of the Exchange Act (together with Sections 3.13(A) and (B), the “EXCHANGE ACT REPORTS”).

3.14 Reporting Company; Form S-3. The Company is subject to the reporting requirements of the Exchange Act and since June 30, 2011 has timely filed all reports required thereby. As of their respective filing dates, all Exchange Act Reports complied in all material respects with the requirements of the Exchange Act. The Company is eligible to register the Conversion Shares and the Warrant Shares for resale by the Purchaser on a registration statement on Form S-3 under the Securities Act.

3.15 Use of Proceeds. The Company intends to use the proceeds from the sale of the Securities for research and clinical development activities, the manufacturing and commercialization of its product candidates, working capital and general corporate purposes, including to fund the analysis of the data from the Company’s ongoing phase 2 trial of IMO-3100, the conduct of a phase 1 trial of IMO-8400 and the preparation for the further advancement of the Company’s autoimmune disease program in at least two indications.

3.16 Related Party Transactions. No transaction has occurred between or among the Company and its affiliates, officers or directors or any affiliate or affiliates of any such officer or director that is required to have been described in the Exchange Act Reports under Item 404 of Regulation S-K as required by the Exchange Act or otherwise and is not so described in the Exchange Act Reports.



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3.17 Governmental Permits, Etc. The Company has all franchises, licenses, certificates and other authorizations from such federal, state or local government or governmental agency, department or body that are currently required for the operation of the business of the Company as currently conducted, except where the failure to possess currently such franchises, licenses, certificates and other authorizations would not have a Material Adverse Effect. The Company has not received any written notice of proceedings relating to the revocation or modification of any such permit.

3.18 Financial Statements. The financial statements of the Company and the related notes contained in the Exchange Act Reports (collectively, the "FINANCIAL STATEMENTS") present fairly in all material respects the financial position of the Company as of the dates indicated, and the results of operations and cash flows for the periods therein specified, subject, in the case of unaudited financial statements for interim periods, to normal year-end audit adjustments. The Financial Statements (including the related notes) have been prepared in accordance with United States generally accepted accounting principles ("GAAP"), applied on a consistent basis throughout the periods therein specified, except that unaudited financial statements are subject to normal year-end audit adjustments and may not contain all footnotes required by GAAP. Since September 30, 2012, the Company has not incurred liabilities, contingent or otherwise outside the ordinary course of business which individually or in the aggregate, are material to the financial condition or operating results of the Company.

3.19 Listing. The Common Stock is presently listed on the Nasdaq Global Market. Except as set forth in the Exchange Act Reports, the Company has not, in the two years preceding the date hereof, received any written notice from the Nasdaq Global Market to the effect that the Company is not in compliance with the maintenance requirements of such exchange.

3.20 Sarbanes-Oxley Act; Accounting Controls. The Company is in compliance in all material respects with all provisions of the Sarbanes-Oxley Act of 2002 which are applicable to it. The Company maintains a system of internal accounting controls that the Company reasonably believes is sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorization; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with generally accepted accounting principles and to maintain accountability for assets; (iii) access to assets is permitted only in accordance with management's general or specific authorization; and (iv) the recorded accountability for assets is compared with existing assets at reasonable intervals and appropriate action is taken with respect to any differences.

3.21 Securities Law Exemptions. Assuming the accuracy of the representations and warranties of the Purchasers contained in Article 4 hereof, the offer, sale and issuance of the Securities are exempt from the registration requirements of the Securities Act, and the registration, permit or qualification requirements of any applicable state securities laws. Neither the Company nor any person acting on its behalf has taken any action to sell, offer for sale or solicit offers to buy any securities of the Company that would reasonably be expected to subject the offer, issuance or sale of the Securities, as contemplated by this Agreement, to the registration requirements of Section 5 of the Securities Act.

3.22 No Integrated Offering. Neither the Company, nor any of its affiliates, nor any person acting on its or their behalf, has directly or indirectly made any offers or sales of any security or solicited any offers to buy any security under circumstances that would cause this offering of Securities to be integrated with any prior or contemporaneous offering of securities of the Company for purposes of the Securities Act or any applicable state securities law or any applicable stockholder approval provisions.

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3.23 No Brokers. The Company has taken no action which would give rise to any claim by any person for brokerage commissions, finder's fees or similar payments by any Purchaser relating to this Agreement or the transactions contemplated hereby, other than fees that may be owed to Piper Jaffray & Co. and JMP Group Inc. as disclosed to the Purchasers.

3.24 Tax Matters. The Company has timely prepared and filed all material tax returns required to have been filed by the Company with all appropriate governmental agencies and timely paid all taxes shown thereon. The charges, accruals and reserves on the books of the Company in respect of taxes for all fiscal periods are adequate in all material respects, and there are no material unpaid assessments against the Company nor, to the Company's knowledge, any basis for the assessment of any additional taxes, penalties or interest for any fiscal period or audits by any federal, state or local taxing authority except for any assessment which would not have a Material Adverse Effect. All material taxes and other assessments and levies that the Company is required to withhold or to collect for payment have been duly withheld and collected and paid to the proper governmental entity or third party when due. There are no tax liens or claims pending or, to the Company's knowledge, threatened against the Company or any of its assets or properties.

3.25 Application of Takeover Protections. The Company has taken all necessary action, if any, in order to render inapplicable any control share acquisition, business combination, poison pill (including any distribution under a rights agreement) or other similar anti-takeover provision under the Company's certificate of incorporation (or similar charter documents) or the laws of its state of incorporation that is or could become applicable to the Purchasers as a result of the Purchasers and the Company fulfilling their obligations or exercising their rights under the Transaction Documents, including without limitation as a result of the Company's issuance of the Securities and the Purchasers' ownership of the Securities.

3.26 Insurance Coverage. The Company maintains in full force and effect insurance coverage and the Company reasonably believes such insurance coverage is adequate.

#### **ARTICLE 4**

##### **REPRESENTATIONS AND WARRANTIES OF PURCHASER**

Each Purchaser hereby represents and warrants as follows:

4.1 This Agreement and the Registration Rights Agreement have been duly and validly authorized, executed and delivered on behalf of such Purchaser and are valid and binding agreements of such Purchaser enforceable against such Purchaser in accordance with their terms except as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance or similar laws affecting creditors' and contracting parties' rights generally and except as enforceability may be subject to general principles of equity (regardless of whether such enforceability is considered in a proceeding in equity or at law) and except to the extent enforcement of the Purchaser's indemnification obligations set forth in the Registration Rights Agreement may be limited by federal or state securities laws or the public policy underlying such laws.

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4.2 The Purchaser represents and warrants to, and covenants with, the Company that: (i) the Purchaser is knowledgeable, sophisticated and experienced in making, and is qualified to make, decisions with respect to investments in securities representing an investment decision like that involved in the purchase of the Securities, including investments in securities issued by the Company and comparable entities, and has had the opportunity to request, receive, review and consider all information it deems relevant in making an informed decision to purchase the Securities; (ii) the Purchaser is acquiring the Securities set forth in Article 1 above in the ordinary course of its business and for its own account for investment only and with no present intention of distributing any of such Securities or any arrangement or understanding with any other persons regarding the distribution of such Securities (this representation and warranty not limiting the Purchaser's right to sell pursuant to the Registration Statement or in compliance with the Securities Act and the rules and regulations promulgated thereunder, or the Purchaser's right to indemnification under the Registration Rights Agreement); (iii) the Purchaser has not been organized, reorganized or recapitalized specifically for the purpose of investing in the Securities; (iv) the Purchaser has completed or caused to be completed, or will complete and deliver to the Company within five Business Days (as defined below) after the Closing, the Registration Statement Questionnaire attached hereto as part of Exhibit E, for use in preparation of the Registration Statement, and the answers thereto are true and correct as of the date such Registration Statement Questionnaire is delivered to the Company and will be true and correct as of the effective date of the Registration Statement and the Purchaser will notify the Company promptly of any material change in any such information provided in the Registration Statement Questionnaire until such time as the Purchaser has sold all of its Securities or until the Company is no longer required to keep the Registration Statement effective; (v) the Purchaser has had an opportunity to discuss this investment with representatives of the Company and ask questions of them; (vi) the Purchaser is an "accredited investor" within the meaning of Rule 501(a) of Regulation D promulgated under the Securities Act; (vii) the Purchaser agrees to notify the Company promptly of any change in any of the foregoing information until such time as the Purchaser has sold all of its Securities or the Company is no longer required to keep the Registration Statement effective; and (viii) the Purchaser will not, directly or indirectly, offer, sell, pledge, transfer or otherwise dispose of (or solicit any offers to buy, purchase or otherwise acquire to take a pledge of) any of the Shares except in compliance with the Securities Act, the Rules and Regulations, and applicable state securities laws. The term "BUSINESS DAY" means a day, other than a Saturday or Sunday, on which banks in New York City are open for the general transaction of business.

4.3 The Purchaser understands that the Securities are being offered and sold to it in reliance upon specific exemptions from the registration requirements of the Securities Act, the Rules and Regulations and state securities laws and that the Company is relying upon the truth and accuracy of, and the Purchaser's compliance with, the representations, warranties, agreements, acknowledgments and understandings of the Purchaser set forth herein in order to determine the availability of such exemptions and the eligibility of the Purchaser to acquire the Securities.

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4.4 The Purchaser understands that its investment in the Securities involves a significant degree of risk, including a risk of total loss of the Purchaser's investment, and the Purchaser has full cognizance of and understands all of the risk factors related to the Purchaser's purchase of the Securities. The Purchaser understands that the market price of the Common Stock has been volatile and that no representation is being made as to the future value of the Common Stock. The Purchaser has the knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of an investment in the Securities and has the ability to bear the economic risks of an investment in the Securities.

4.5 The Purchaser understands that no United States federal or state agency or any other government or governmental agency has passed upon or made any recommendation or endorsement of the Securities.

4.6 The Purchaser's principal executive offices are at the address set forth below the Purchaser's name on the Schedule of Purchasers.

4.7 The Purchaser further represents and warrants to, and covenants with, the Company that (i) the Purchaser is in compliance with Executive Order 13224 and the regulations administered by the U.S. Department of the Treasury ("TREASURY") Office of Foreign Assets Control, (ii) the Purchaser, its parents, subsidiaries, affiliated companies, officers, directors and partners, and to the Purchaser's knowledge, its shareholders, owners, employees, and agents, are not on the List of Specially Designated Nationals and Blocked Persons maintained by Treasury and have not been designated by Treasury as a financial institution of primary money laundering concern, (iii) to the Purchaser's knowledge after reasonable investigation, all of the funds to be used to acquire the Securities are derived from legitimate sources and are not the product of illegal activities, and (iv) the Purchaser is in compliance with all other applicable U.S. anti-money laundering laws and regulations and has implemented, if applicable, an anti-money laundering compliance program in accordance with the requirements of the Bank Secrecy Act, as amended by the USA PATRIOT Act, Pub. L. 107-56.

4.8 If the Purchaser is not a U.S. person (as defined in Securities Act Rule 902(k)), he, she or it further makes the representations and warranties set forth in this Section 4.8.

(A) Such Purchaser is not a U.S. person and is not acquiring the Securities for the account or benefit of any U.S. person.

(B) Such Purchaser will not offer or sell the Securities to a U.S. person or to for the account or benefit of a U.S. person prior to the expiration of the six-month period after the date on which such Purchaser purchased such Securities.

(C) Such Purchaser understands and acknowledges that the Securities have not been registered under the Securities Act and are being offered and transferred in reliance upon the exemptions provided in Regulation S of the Securities Act and the rules and regulations adopted thereunder. Accordingly, the Securities may not be offered or sold in the U.S. or to U.S. persons unless the securities are registered under the Securities Act, or an exemption for the regulation requirements is available. Furthermore, hedging transactions involving the Securities may not be conducted unless in compliance with the Securities Act.

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(D) Such Purchaser acknowledges and agrees that, notwithstanding anything in this Agreement to the contrary, the Company shall, and shall instruct its transfer agent to, refuse to register any transfer of Securities Act that is not made in accordance with the provisions of Regulation S, pursuant to registration under Securities Act or pursuant to an available exemption from registration required under the Securities Act.

## ARTICLE 5

### COVENANTS

5.1 Form D; Form 8-K. The Company shall file with the SEC a Form D with respect to the Securities as required under Regulation D. Within four trading days after the Closing Date, the Company shall file a Form 8-K (or include in a Form 10-Q information) concerning this Agreement and the transactions contemplated hereby, which Form 8-K (or Form 10-Q) shall attach this Agreement, the Registration Rights Agreement, the Certificate of Designations and the “form of Warrant” as exhibits to such Form 8-K (or Form 10-Q).

#### 5.2 Preemptive Rights.

(A) In the event that, on or prior to the earlier of (i) the third anniversary of the Closing Date and (ii) with respect to any Purchaser the day that such Purchaser holds a number of Shares (including shares of Common Stock issued upon conversion of the Shares) which is less than 50% of the number of Shares purchased by such Purchaser pursuant to this Agreement and set forth opposite such Purchaser’s name on the Schedule of Purchasers (such number of Shares being subject to adjustment for stock splits, dividends, combinations, recapitalizations, reclassifications and other similar events), the Company proposes to sell and issue securities of the Company in a private placement and not pursuant to an effective registration statement filed under the Securities Act (an “ADDITIONAL FINANCING”) each Purchaser shall have the option to purchase, on the same terms and conditions offered by the Company to the other purchasers of such securities in such Additional Financing, up to that percentage of the securities sold in such Additional Financing equal to (x) the number of shares of Common Stock then held by such Purchaser (including shares of Common Stock then issuable upon conversion of any shares of Preferred Stock then held by such Purchaser) as compared to (y) the total number of shares of Common Stock then outstanding (including all shares of Common Stock then issuable upon conversion of all shares of Preferred Stock) (such percentage being such Purchaser’s “ADDITIONAL FINANCING PRO RATA AMOUNT”); provided, however, that if a Purchaser’s Additional Financing Pro Rata Amount as calculated exceeds 19.99% (prior to the date the stockholders of the Company approve the Nasdaq Proposal (as defined by and in accordance with Section 5.11(B)) or 35% (effective upon the date that the stockholders of the Company approve the Nasdaq Proposal), such Purchaser’s Additional Financing Pro Rata Amount shall be 19.99% or 35%, as the case may be.

(B) In the event that on or prior to the earlier of (i) the third anniversary of the Closing Date and (ii) with respect to any Purchaser the day before the date that such Purchaser holds a number of Shares which is less than 50% of the number of Shares purchased by such Purchaser pursuant to this Agreement and set forth opposite such Purchaser’s name on the Schedule of Purchasers (such number of Shares being subject to adjustment for stock splits, dividends, combinations, recapitalizations, reclassifications and other similar events), the Company proposes to (x) enter into a loan financing for the purpose of raising capital and not for the purpose of purchasing equipment (a “LOAN FINANCING”), or (y) sell and issue convertible debt securities or preferred stock of the Company that ranks senior to the Series D Preferred Stock or the Series E Preferred Stock in a private placement and not pursuant to an effective registration statement filed under the Securities Act (together with a Loan Financing, a “SENIOR FINANCING,” and, together with an Additional Financing, an “ADDITIONAL TRANSACTION”), each such Purchaser shall have the option to participate in a Loan Financing or purchase securities in other Senior Financings, on the same terms and conditions offered by the Company to the other participants or purchasers of securities in such Senior Financings, up to that percentage (such percentage being such Purchaser’s “ADDITIONAL TRANSACTION PRO RATA AMOUNT”) of the amount of the Loan Financing or of the securities sold in such Senior Financing equal to the product of:

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i. a fraction, the numerator of which equals the number of Shares then held by the Purchaser and the denominator of which equals the total number of Shares issued to Purchasers by the Company; and

ii. if the closing date of the Senior Financing is on or prior to (i) the first anniversary of the Closing Date, 50%, (ii) the second anniversary of the Closing Date, 40%, or (iii) the third anniversary of the Closing Date, 30%.

(C) The terms of any Senior Financing may provide that the participants in such Senior Financing, other than any Purchasers participating in such Senior Financing, shall have the right to exercise control over any matter requiring action by or on behalf of all participants in such Senior Financing without the consent of any Purchaser.

(D) If the Board determines in good faith that the participation in the Senior Financing by the Purchasers pursuant to the preemptive rights set forth in Section 5.2(B) would jeopardize the consummation of such Senior Financing on terms acceptable to the Board, then the Company will have no obligation to offer the Purchasers the opportunity to participate in such Senior Financing pursuant to Section 5.2(B).

(E) To the extent that a Purchaser is entitled to preemptive rights pursuant to both of Section 5.2(A) and Section 5.2(B) with respect to a Senior Financing, the preemptive right providing such Purchaser with the greater percentage participation right (based on Additional Financing Pro Rata Amount as compared to the Additional Transaction Pro Rata Amount) shall apply.

(F) Promptly after the Company determines to engage in an Additional Transaction, the Company shall deliver a written notice (the "OFFER NOTICE") to the Purchasers stating (i) its bona fide intention to offer securities in an Additional Transaction, (ii) the number of such securities to be offered or amount to be borrowed in the Loan Financing, (iii) the price and terms, to the extent known, upon which it proposes to offer such securities or borrow such funds, and (iv) the anticipated closing date of the Additional Transaction. The Company shall promptly notify each Purchaser of (i) the determination of the price and terms upon which it proposes to offer such securities, to the extent not set forth in the Offer Notice, and (ii) any material change in any of the information set forth in the Offer Notice or in the price or other terms previously communicated to such Purchaser.

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(G) No Purchaser may participate in an Additional Transaction, in whole or in part, unless it (i) delivers to the Company, on or prior to the date 10 days after the date of delivery of the Offer Notice a written notice of acceptance (an "ACCEPTANCE NOTICE") providing a representation letter certifying that such Purchaser is an accredited investor within the meaning of Rule 501 under the Securities Act and indicating the portion of the Purchaser's Additional Financing Pro Rata Amount or Additional Transaction Pro Rata Amount, as applicable, that such Purchaser elects to purchase and (ii) deposits in a U.S. escrow account on terms satisfactory to the Company the amount that the Purchaser proposes to invest pursuant to the preemptive rights set forth in this Section 5.2 (the "ESCROW DEPOSIT") concurrently with delivering an Acceptance Notice indicating the amount or number of securities to be purchased by the Purchaser; provided, that if the Company does not intend to sign the definitive documentation for such Additional Transaction within ten days of the date such Acceptance Notice is due pursuant to clause (i) of this Section 5.2(G), the Purchaser must make the Escrow Deposit no later than five days after a request from the Company for the Purchaser to make such Escrow Deposit.

(H) Any issuance of Exempted Securities (as defined in the Series D Certificate of Designations) shall not be Additional Transactions for purposes of this Section 5.2 and the Purchasers shall have no rights hereunder with respect to the issuance of Exempted Securities; provided, however, that any issuance described in clause (vi) of the definition of Exempted Securities that constitutes a Senior Financing shall not be exempted from Section 5.2(B).

(I) No Purchaser shall have any right to purchase securities of the Company hereunder, and the Company shall have no obligation to a Purchaser hereunder, if (1) the Company has used its reasonable best efforts to ensure that the sale of such securities to such Purchaser will not violate the Securities Act or the Exchange Act and, despite such efforts, the Company reasonably determines in good faith that the sale of such securities to such Purchaser cannot be made without the violation of any rule or regulation promulgated thereunder or (2) the Company reasonably determines in good faith that the sale of such securities to such Purchaser cannot be made without requiring the approval of the Company's stockholders for a reason that is related to such Purchaser (or to the Purchasers as a group) and is not related to the participation of other participants in the Additional Transaction, including, without limitation, the application of Nasdaq Listing Rule 5635(b).

5.3 Expenses. The Company shall pay to Pillar Pharmaceuticals II, L.P. ("PILLAR") at the Closing upon delivery to the Company of an invoice, reimbursement for the out-of-pocket expenses reasonably incurred by Pillar or its advisors in connection with the negotiation, preparation, execution and delivery of the Transaction Documents and the other agreements to be executed in connection herewith, and therewith, including, without limitation, reasonable due diligence and attorneys' fees and expenses related to the transactions contemplated by the Transaction Documents (the "EXPENSES"); provided, however, the maximum amount of Expenses for which the Company shall be responsible pursuant to this Section shall be \$200,000 and the balance of the expenses of Pillar and the other Purchasers shall be borne by Pillar and the other Purchasers.

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5.4 Listing. The Company will use its reasonable best efforts to continue the listing and trading of its Common Stock, including the Conversion Shares and Warrant Shares, on the NYSE MKT (formerly known as the American Stock Exchange), the New York Stock Exchange, the Nasdaq Global Market, the Nasdaq Capital Market, the Nasdaq Global Select Market or other equivalent U.S. national exchange or automated trading market (a "PERMITTED EXCHANGE"), and to comply with the reporting, filing and other obligations under the bylaws or rules thereof, provided, however, that in the event the Company uses its reasonable best efforts but is unsuccessful in maintaining the listing of its Common Stock on the Nasdaq Global Market due to the matters referenced in the letter dated June 4, 2012 from the Nasdaq Global Market as described in the Exchange Act Reports, then, in light of the Company's belief that it is in the best interests of the Company that the Common Stock be listed on a Permitted Exchange, the Company shall use its reasonable best efforts to seek re-listing of its Common Stock on a Permitted Exchange.

5.5 Securities Laws; No Integrated Offerings. The Company shall not make any offers or sales of any security under circumstances that would cause the offer and sale of the Securities hereunder to violate the Securities Act or the rules or regulations promulgated thereunder or cause the offer and sale of the Securities to be subject to any stockholder approval provision applicable to the Company or its securities.

5.6 No Short Sales. Each Purchaser agrees that beginning on the date hereof until the earlier of (i) the first anniversary of the date hereof or (ii) the date at which the Shares held by such Purchaser have been converted into Common Stock, it will not enter into any Short Sales. For purposes of this Section 5.6, a "Short Sale" by a Purchaser means a sale of Common Stock that is marked as a short sale and that is executed at a time when such Purchaser has no equivalent offsetting long position in the Common Stock. For purposes of determining whether a Purchaser has an equivalent offsetting long position in the Common Stock, all Common Stock that would be issuable upon exercise in full of all options then held by such Purchaser (assuming that such options were then fully exercisable, notwithstanding any provisions to the contrary, and giving effect to any exercise price adjustments scheduled to take effect in the future) shall be deemed to be held long by such Purchaser.

5.7 Standstill Provision. Each Purchaser hereby agrees that, to the extent that and for so long as the total number of shares of Common Stock beneficially owned by the Purchaser and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with each Purchaser for purposes of Section 13(d) of the Exchange Act exceeds 15%, unless specifically invited in writing by the Company to do so, neither the Purchaser nor its affiliates will, or will cause or knowingly permit any of its or their directors, officers, partners, managers, employees, investment bankers, attorneys, accountants or other advisors or representatives to, in any manner, directly or indirectly:

(A) effect or seek, initiate, offer or propose (whether publicly or otherwise) to effect, or cause or participate in or in any way advise or, assist any other person to effect or seek, initiate, offer or propose (whether publicly or otherwise) to effect or cause or participate in, any acquisition of any securities (or beneficial ownership thereof) or assets of the Company; any tender or exchange



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offer, merger, consolidation or other business combination involving the Company; any recapitalization, restructuring, liquidation, dissolution or other extraordinary transaction with respect to the Company; or any "solicitation" of "proxies" (as such terms are used in the proxy rules of the Commission) or consents to vote any voting securities of the Company. Notwithstanding the foregoing, nothing in this clause (A) shall prevent or limit the ability of any director of the Company that is affiliated with a Purchaser to (i) acquire, exercise or dispose of any stock options or other equity securities of the Company received as compensation for serving as a director or (ii) perform his or her duties as a director of the Company;

(B) form, join or in any way participate in a "group" (as defined under the Exchange Act) with respect to any securities of the Company;

(C) otherwise act, alone or in concert with others, to seek to control or influence the management, Board or policies of the Company;

(D) take any action which could reasonably be expected to force the Company to make a public announcement regarding any of the types of matters set forth in this Section 5.7;

(E) nominate or otherwise support the election of any person as a director of the Company except as approved by the Board; provided, that this covenant is not intended to prevent any Purchaser or its affiliates from voting any shares of capital stock it holds (other than the Excess Shares) in favor of the election of a person not nominated by the Board as long as such Purchaser or any of its affiliates have no arrangements with the nominee or the stockholder that nominated the nominee and are not otherwise in breach of this Section 5.7; or

(F) enter into any agreements, discussions or arrangements with any third party with respect to any of the foregoing.

Notwithstanding the foregoing, the Company hereby agrees that the purchase by a Purchaser of securities of the Company after the date hereof and pursuant to Section 5.2 of this Agreement shall not be a violation of this Section 5.7.

#### 5.8 Voting Rights.

(A) Each Purchaser hereby agrees that, to the extent that and for so long as the total number of shares of Common Stock beneficially owned by the Purchaser and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the Purchaser for purposes of Section 13(d) of the Exchange Act exceeds 19.99% (prior to the date the stockholders of the Company approve the Nasdaq Proposal) or 25% (effective upon the date that the stockholders of the Company approve the Nasdaq Proposal), in any election of directors and in any other vote to be taken by the stockholders of the Company (whether taken at an annual or special meeting of stockholders or by written action), it and its affiliates will vote any Excess Shares (as defined below) held in the same manner as and in the same proportion to the votes cast by the other holders of the Company's Common Stock or other voting securities.

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(B) Each Purchaser hereby constitutes and appoints as the proxies of the party and hereby grants a power of attorney to the officers of the Company, and each of them, with full power of substitution, with respect to clause (A) above, and hereby authorizes each of them to represent and to vote, if and only if the Purchaser (i) fails to vote or (ii) attempts to vote (whether by proxy, in person or by written consent), in a manner which is inconsistent with the terms of clause (A), all of such Purchaser's Excess Shares in accordance with the terms of clause (A). Each of the proxy and power of attorney granted pursuant to the immediately preceding sentence is given in consideration of the agreements and covenants of the Company and the parties in connection with the transactions contemplated by this Agreement and, as such, each is coupled with an interest and shall be irrevocable unless and until this Agreement terminates or expires. Each Purchaser hereby revokes any and all previous proxies or powers of attorney with respect to the Excess Shares and shall not hereafter, unless and until this Agreement terminates or expires, purport to grant any other proxy or power of attorney with respect to any of such Excess Shares, deposit any of such Excess Shares into a voting trust or enter into any agreement (other than this Agreement), arrangement or understanding with any person, directly or indirectly, to vote, grant any proxy or give instructions with respect to the voting of any of such Excess Shares, in each case, with respect to clause (A) above.

(C) Each Purchaser agrees to refrain from exercising (and hereby affirmatively waives) any dissenters' rights or rights of appraisal under applicable law at any time with respect to any Sale of the Corporation (as defined in the Certificate of Designations) to the extent such Sale of the Corporation has been approved by the Board.

(D) For purposes of this Section 5.8, "Excess Shares" means for any Purchaser the number of shares of voting stock held by the Purchaser and its affiliates equal to (i) the total number of shares of Common Stock held by the Purchaser and its affiliates (including the Conversion Shares and shares of Common Stock issuable upon conversion of other series of Preferred Stock held by the Purchaser and its affiliates), less (ii) 19.99% (prior to the date the stockholders of the Company approve the Nasdaq Proposal) or 25% (effective upon the date that the stockholders of the Company approve the Nasdaq Proposal) of the total number of shares of Common Stock then outstanding (including all Conversion Shares and all other shares of Common Stock then issuable upon conversion of other series of Preferred Stock then outstanding).

5.9 Reservation of Common Stock. The Company shall at all times reserve and keep available out of its authorized but unissued shares of Common Stock, solely for the purpose of providing for the conversion of the Series E Preferred Stock and the exercise of the Warrants, such number of shares of Common Stock as shall from time to time equal 100% of the number of shares sufficient to permit the conversion of the Series E Preferred Stock and the exercise of the Warrants issued pursuant to this Agreement in accordance with their respective terms, without regard to any exercise limitations contained therein.

5.10 Delivery of Certificates. In connection with any conversion of the Shares by a Purchaser, the Company shall use its best efforts to issue to such Purchaser the applicable certificate or certificates for the Conversion Shares within three Business Days of receipt of all documents and information needed to effect such conversion and issue such certificates.

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5.11 Proxy Statement.

(A) The Company shall use its best efforts to file a preliminary proxy statement with the SEC with respect to its next annual meeting of stockholders that will, among other things, seek the Stockholder Approval (as defined below) and include a recommendation of the Board that the stockholders approve such matters as are included in the Stockholder Approval (unless the Board determines in good faith, that its fiduciary duties require it to do otherwise).

(B) As used in this Agreement, the term "STOCKHOLDER APPROVAL" shall mean the approval at a meeting of stockholders of the Company of the following matters: (i) the issuance and sale by the Company to the Purchasers (together with all prior issuances and sales to Pillar Pharmaceuticals I, L.P.) of a number of shares of Common Stock (or securities convertible into or exercisable for Common Stock) that is greater than 19.99% of the total number of issued and outstanding shares of Common Stock and of the outstanding voting power of securities of the Company after such issuance and sale in accordance with Nasdaq Listing Rule 5635(b) (the "NASDAQ PROPOSAL"), (ii) an amendment to the certificate of incorporation and bylaws of the Company, as necessary, to eliminate the classification of the Board, and (iii) an amendment to the Series D Certificate of Designations in the form attached hereto as Exhibit G; provided, however, that the Company shall not, and shall have no obligation to, submit the matters contemplated by this clause (iii) to the stockholders of the Company if there are no shares of Series D Preferred Stock then outstanding. In order to be approved at a meeting of the stockholders of the Company:

(a) the Nasdaq Proposal shall require (y) the affirmative vote of the holders of a majority of the combined voting power of the outstanding shares of Common Stock and Series D Convertible Preferred Stock, voting as a single class, calculated on an as converted to Common Stock basis, present or represented in person or by proxy and voting at the special meeting and (z) the affirmative vote of the holders (other than Pillar, the Company and their respective affiliates) of a majority of the combined voting power of the outstanding shares of Common Stock and Series D Convertible Preferred Stock, voting as a single class, calculated on an as converted to Common Stock basis, held by such holders;

(b) the matters described in clause (ii) above shall require the affirmative vote of the holders of at least 75% of the combined voting power of the outstanding shares of Common Stock and Series D Convertible Preferred Stock, voting as a single class, calculated on an as converted to Common Stock basis; and

(c) the matters described in clause (iii) above shall require (y) the affirmative vote of the holders of a majority of the combined voting power of the outstanding shares of Common Stock and Series D Convertible Preferred Stock, voting as a single class, calculated on an as converted to Common Stock basis, present or represented in person or by proxy and voting at the special meeting and (z) the affirmative vote of the holders of a majority of the outstanding shares of the Series D Convertible Preferred Stock, voting separately as a series.

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## ARTICLE 6

### RESTRICTIONS ON TRANSFERABILITY OF SECURITIES

#### 6.1 Restrictions on Transferability.

(A) Subject to Section 6.1(B) and to any requirements of Regulation S that may be applicable to non-U.S. persons, the Securities shall not be sold, transferred, assigned or hypothecated unless (i) there is an effective registration statement under the Securities Act covering such Securities, (ii) the sale is made in accordance with Rule 144 under the Securities Act, or (iii) the Company receives an opinion of counsel for the holder of the Securities reasonably satisfactory to the Company stating that such sale, transfer, assignment or hypothecation is exempt from the registration requirements of the Securities Act, and each such case upon all other conditions specified in this Section 6.1. Furthermore, with respect to Securities that were initially sold by the Company in reliance on Regulation S, hedging transactions involving such Securities may not be conducted unless in compliance with the Securities Act. Notwithstanding the provisions of the preceding sentence, no registration statement or opinion of counsel shall be required for any transfer of any Securities by a Purchaser that is a partnership, a limited liability company or a corporation to (a) a partner of such partnership, a member of such limited liability company or a stockholder of such corporation, (b) an entity that controls, or is controlled by, or is under common control with such partnership, limited liability company or corporation, or (c) the estate of any such partner, member or stockholder (collectively, clauses (a) through (c) the "PERMITTED TRANSFEREES"); provided, that in each of the foregoing cases the proposed transferee of the Securities held by the Purchaser agrees in writing to take and hold such Securities subject to the provisions and upon the conditions specified in this Article 6.

(B) Notwithstanding anything to the contrary set forth in this Agreement, without the prior written consent of the Company, Pillar may not sell or transfer any Securities to a person, entity or group (within the meaning of Section 13(d) of the Exchange Act) in one or more transactions if such sale or transfer would, in the aggregate, result in the transfer to such person, entity or group Securities representing, or exercisable for stock of the Company representing, more than 5% of the then outstanding combined voting power of the outstanding securities of the Company (other than a sale or transfer to a Permitted Transferee who agrees in writing to be bound by such restrictions or in connection with a resale of such Securities in connection with an underwritten public offering that has been approved by the Board).

(C) Any transfer not made in compliance with the requirements of this Section 6.1 shall be null and void ab initio, shall not be recorded on the books of the Company or its transfer agent and shall not be recognized by the Company. Each Purchaser acknowledges and agrees that any breach of this Section 6.1 by a Purchaser would result in substantial harm to the Company and its stockholders for which monetary damages alone could not adequately compensate. Therefore, each Purchaser unconditionally and irrevocably agrees that the Company shall be entitled to seek protective orders, injunctive relief and other remedies available at law or in equity (including without limitation, seeking specific performance or the rescission of purchases, sales and other transfers of Securities not made in compliance with this Section 6.1).

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6.2 Restrictive Legends. Each certificate representing the Securities, and any other securities issued in respect of the Securities upon any stock split, stock dividend, recapitalization, merger, consolidation or similar event (except as otherwise permitted by the provisions of this Article 6), shall be stamped or otherwise imprinted with the following legends (as applicable with respect to the second and third legends set forth below) in substantially the following forms:

“THE SECURITIES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR THE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES OR IN ANY OTHER JURISDICTION.”

U.S. Investors: “THE SECURITIES REPRESENTED HEREBY MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FOR THE SECURITIES UNDER APPLICABLE SECURITIES LAWS UNLESS OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THOSE LAWS.”

Non-U.S. Investors: “THE SECURITIES REPRESENTED HEREBY MAY NOT BE OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED EXCEPT IN COMPLIANCE WITH REGULATIONS UNDER THE SECURITIES ACT, AND IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT FOR THE SECURITIES UNDER APPLICABLE SECURITIES LAWS UNLESS OFFERED, SOLD OR OTHERWISE TRANSFERRED, PLEDGED OR HYPOTHECATED PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THOSE LAWS. HEDGING TRANSACTIONS INVOLVING THE SECURITIES REPRESENTED HEREBY MAY NOT BE CONDUCTED UNLESS IN COMPLIANCE WITH THE SECURITIES ACT.”

“THE SECURITIES REPRESENTED BY THIS CERTIFICATE MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.”

6.3 Removal of Legend and Transfer Restrictions. The foregoing legends (other than the last legend) shall be removed from the certificates representing such Securities, at the request of the holder thereof, at such time as (a) a period of at least one year, as determined in accordance with paragraph (d) of Rule 144 under the Securities Act, as elapsed since the later of the date the Securities were acquired from the Company or an affiliate of the Company, and (b) the Securities become eligible for resale pursuant to Rule 144(b)(1)(i) under the Securities Act.

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**ARTICLE 7**

**MISCELLANEOUS**

7.1 Survival of Representations, Warranties and Agreements. Notwithstanding any investigation made by any party to this Agreement, all covenants, agreements, representations and warranties made by the Company and the Purchasers herein shall survive the execution of this Agreement, the delivery to the Purchasers of the Shares and Warrants being purchased and the payment therefor.

7.2 Notices. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (i) upon delivery to the party to be notified, (ii) when received by email or confirmed facsimile, or (iii) one Business Day after deposit with a nationally recognized overnight carrier, specifying next Business Day delivery, with written verification of receipt. All communications shall be sent to the Company and the Purchasers as follows or at such other addresses as the Company or the Purchasers may designate upon 10 days' advance written notice to the other party:

(A) if to the Company, to:

Idera Pharmaceuticals, Inc.  
167 Sidney Street  
Cambridge, MA 02139  
Attention: Chief Executive Officer  
Facsimile: (617) 679-5592  
Email: sagrawal@iderapharma.com

with a copy to:

Wilmer Cutler Pickering Hale and Dorr LLP  
60 State Street  
Boston, Massachusetts 02109  
Attention: Stuart Falber  
Facsimile: (617) 526-5000 Email: stuart.falber@wilmerhale.com

(B) if to a Purchaser, at its address as set forth on the Schedule of Purchasers to this Agreement.

7.3 Changes. This Agreement may not be modified or amended except pursuant to an instrument in writing signed by the Company and the Purchasers holding a majority of the Shares then outstanding. No provision hereunder may be waived other than in a written instrument executed by the waiving party.

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7.4 Headings. The headings of the various sections of this Agreement have been inserted for convenience of reference only and shall not be deemed to be part of this Agreement.

7.5 Severability. In case any provision contained in this Agreement should be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

7.6 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware without regard to principles of conflicts of law.

7.7 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall constitute an original, but all of which, when taken together, shall constitute but one instrument, and shall become effective when one or more counterparts have been signed by each party hereto and delivered (including by facsimile) to the other parties.

7.8 Entire Agreement. This Agreement, the Registration Rights Agreement and the instruments referenced herein contain the entire understanding of the parties with respect to the matters covered herein and therein and, except as specifically set forth herein or therein, neither the Company nor the Purchasers make any representation, warranty, covenant or undertaking with respect to such matters.

7.9 Assignment. Except as otherwise expressly provided herein, the provisions hereof shall inure to the benefit of, and be binding upon, the parties hereto and their respective permitted successors, assigns, heirs, executors and administrators. This Agreement and the rights of a Purchaser hereunder may not be assigned by the Purchaser without the prior written consent of the Company, except such consent shall not be required in cases of assignments by a Purchaser as permitted under Section 6.1, provided that such assignee agrees in writing to be bound by the terms of this Agreement. Notwithstanding the foregoing, the rights set forth in Sections 5.2 and 5.11 may not be assigned or transferred.

7.10 Further Assurances. Each party agrees to cooperate fully with the other parties and to execute such further instruments, documents and agreements and to give such further written assurance as may be reasonably requested by any other party to evidence and reflect the transactions described herein and contemplated hereby and to carry into effect the intents and purposes of this Agreement.

7.11 Confidentiality. Each Purchaser agrees that it will keep confidential and will not disclose or divulge any confidential, proprietary or secret information which such Purchaser may obtain from the Company pursuant to reports, notices and other materials submitted by the Company to such Purchaser pursuant to this Agreement, otherwise pursuant to the Registration Rights Agreement, unless (a) such information is known, or until such information becomes known, to the public or (b) such information is required to be disclosed in legal proceedings (such as by deposition, interrogatory, request for documents, subpoena, civil investigation demand, filing with any governmental authority or similar process), provided, however, that before making any use or disclosure in reliance on this clause (b) the Purchaser shall give the Company at least 15 days' prior written notice (or such shorter period as required by law)

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specifying the circumstances giving rise thereto and will furnish only that portion of the non-public information which is legally required and will exercise its best efforts to obtain reliable assurance that confidential treatment will be accorded any non-public information so furnished.

7.12 Use of Purchaser Name. Except as may be required by applicable law or regulation and as may be required in the Registration Statement, the Company shall not use any Purchaser's name or the name of any of its affiliates in any advertisement, announcement, press release or other similar public communication in connection with the offering of the Securities contemplated hereby unless it has received the prior written consent of such Purchaser for the specific use contemplated or as otherwise required by applicable law or regulation.

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first set forth above.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal  
Sudhir Agrawal  
Chairman, Chief Executive Officer and President

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first set forth above.

PURCHASER:

PILLAR PHARMACEUTICALS II, L.P.

By: /s/ Youssef El Zein

Name: Youssef El Zein

Title: General Partner

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first set forth above.

PURCHASER

PARTICIPATIONS BESANCON

By: Pillar Invest Corporation, as attorney-in-fact

By: /s/ Youssef El Zein

Name: Youssef El Zein

Title: as attorney-in-fact per power signed on  
November 9<sup>th</sup>, 2012

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**EXHIBIT A**

**Schedule of Purchasers**

	<u>Shares</u>	<u>Warrants</u>	<u>Purchase Price</u>
Pillar Pharmaceuticals II, L.P. Address: Pillar Invest Offshore SAL Starco Center, Bloc B, Third Floor Omar Daouk Street Beirut 2020-3313 Lebanon  Tel: +961 1 363 362 Fax: +961 1 379 378 Email: <a href="mailto:pillar@pillarinvest.com">pillar@pillarinvest.com</a>	313,341	6,266,820	\$5,170,126.50
Participations Besancon Address: Pillar Invest Offshore SAL Starco Center, Bloc B, Third Floor Omar Daouk Street Beirut 2020-3313 Lebanon  Tel: +961 1 363 362 Fax: +961 1 379 378 Email: <a href="mailto:pillar@pillarinvest.com">pillar@pillarinvest.com</a>	110,901	2,218,020	\$1,829,866.50
<b>Total:</b>	<b>424,242</b>	<b>8,484,840</b>	<b>\$6,999,993.00</b>

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**EXHIBIT B**

**Form of Warrant**

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**EXHIBIT C**

**Certificate of Designations**

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**EXHIBIT D**

**Registration Rights Agreement**

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**EXHIBIT E**

**Legal Opinion**



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**EXHIBIT F**

**Registration Statement Questionnaire**

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**EXHIBIT G**

**Amendment to Series D Certificate of Designations**

**IDERA PHARMACEUTICALS, INC.**  
**REGISTRATION RIGHTS AGREEMENT**

REGISTRATION RIGHTS AGREEMENT (this "AGREEMENT"), dated as of November 9, 2012, by and among IDERA PHARMACEUTICALS, INC., a corporation organized under the laws of the State of Delaware (the "COMPANY"), and each of the persons or entities listed on Exhibit A hereto (the "PURCHASERS").

WHEREAS:

In connection with the Convertible Preferred Stock and Warrant Purchase Agreement, dated as of even date herewith, by and among the Company and the Purchasers (the "STOCK PURCHASE AGREEMENT"), the Company has agreed, upon the terms and subject to the conditions contained therein, to issue and sell to the Purchasers (i) shares (the "SHARES") of the Company's Series E convertible preferred stock, par value \$0.01 per share (the "PREFERRED STOCK"), and (ii) warrants (the "WARRANTS") to acquire shares of the Company's common stock, par value \$0.001 per share (the "COMMON STOCK"). The shares of Common Stock issuable upon exercise of or otherwise pursuant to the Warrants are referred to herein as the "WARRANT SHARES."

To induce the Purchasers to execute and deliver the Stock Purchase Agreement, the Company has agreed to provide certain registration rights under the Securities Act of 1933, as amended, and the rules and regulations thereunder, or any similar successor statute (collectively, the "SECURITIES ACT"), and applicable state securities laws.

NOW, THEREFORE, in consideration of the premises and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and the Purchasers hereby agree as follows:

1. DEFINITIONS.

A. As used in this Agreement, the following terms shall have the following meanings:

i. "PURCHASERS" means the Purchasers and any transferees or assignees who agree to become bound by the provisions of this Agreement in accordance with Section 10 hereof.

ii. "REGISTER," "REGISTERED," and "REGISTRATION" refer to a registration effected by preparing and filing a Registration Statement or Statements in compliance with the Securities Act and pursuant to Rule 415 under the Securities Act or any successor rule providing for offering securities on a continuous basis ("RULE 415"), and the declaration or ordering of effectiveness of such Registration Statement by the United States Securities and Exchange Commission (the "SEC").

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iii. "REGISTRABLE SECURITIES" means (a) the shares of Common Stock issued or issuable upon the conversion of the Shares (the "CONVERSION SHARES"), (b) the Warrant Shares and (c) any shares of capital stock issued or issuable, from time to time (with any adjustments), in respect of the Conversion Shares or the Warrant Shares by virtue of any stock split, stock dividend, recapitalization or similar event; provided, however, that shares of Common Stock that are Registrable Securities shall cease to be Registrable Securities upon the earliest of (A) the date such shares become eligible for sale pursuant to Rule 144(b)(1)(i) under the Securities Act; provided that a period of at least one year, as determined in accordance with paragraph (d) of Rule 144 under the Securities Act, has elapsed since the later of the date such shares were acquired from the Company or an affiliate of the Company, (B) the date that such shares are sold (I) pursuant to a registration statement, (II) to or through a broker, dealer or underwriter in a public securities transaction and/or (III) in a transaction exempt from the registration and prospectus delivery requirements of the Securities Act such that all transfer restrictions and restrictive legends with respect thereto, if any, are removed upon the consummation of such sale, or (C) any sale or transfer to any person or entity which by virtue of Section 10 of this Agreement is not entitled to the rights provided by this Agreement. Wherever reference is made in this Agreement to a request or consent of holders of a certain percentage of Registrable Securities, the determination of such percentage shall include shares of Common Stock issuable upon conversion of the Shares or exercise of the Warrants, even if such conversion or exercise has not been effected.

iv. "REGISTRATION STATEMENT" means a registration statement of the Company under the Securities Act (including without limitation the Initial Registration Statement, the New Registration Statement and any Remainder Registration Statements, each, as defined below).

v. "SEC GUIDANCE" means (i) any publicly-available written or oral guidance, comments, requirements or requests of the SEC staff (ii) any written or oral guidance, requirements or requests by the SEC staff to the Company and (iii) the Securities Act.

B. Capitalized terms used herein and not otherwise defined herein shall have the respective meanings set forth in the Stock Purchase Agreement.

## 2. REGISTRATION.

### A. MANDATORY REGISTRATION.

i. The Company shall file with the SEC and use its reasonable best efforts to cause to become effective a Registration Statement on Form S-3 (or, if Form S-3 is not then available, on such form of Registration Statement as is then available to effect a registration of all of the Registrable Securities) covering the resale of the Registrable Securities on or prior to February 7, 2013 (the "INITIAL REGISTRATION STATEMENT"). The Initial Registration Statement filed hereunder, to the extent allowable under the Securities Act, shall state that such Initial Registration Statement also covers such indeterminate number of additional shares of Common Stock as may become issuable upon conversion of the Shares or exercise of the Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions.

ii. Notwithstanding the registration obligations set forth in this Section 2, in the event the SEC informs the Company that all of the Registrable Securities cannot, as a result of the application of Rule 415, be registered for resale as a secondary offering on a single registration statement, the Company shall promptly inform each of the Purchasers and use its commercially reasonable efforts to (a) file amendments to the Initial Registration Statement as required by the SEC and/or (b) withdraw the Initial Registration Statement and file a new registration statement (a "NEW REGISTRATION STATEMENT"), in either case covering the maximum number of Registrable Securities permitted to be registered by the SEC, on Form S-3 or such other form available to register for resale the Registrable Securities as a secondary offering; *provided, however*, that prior to filing such amendment or New Registration Statement, the Company shall be obligated to use its commercially reasonable efforts to advocate with the SEC for the registration of all of the Registrable Securities in accordance with the SEC Guidance, including without limitation, Compliance and Disclosure Interpretation 612.09 of the rules adopted under the Securities Act.

iii. Notwithstanding any other provision of this Agreement, if any SEC Guidance sets forth a limitation on the number of Registrable Securities permitted to be registered on a particular Registration Statement as a secondary offering (and notwithstanding that the Company used commercially reasonable efforts to advocate with the SEC for the registration of all or a greater number of Registrable Securities), unless otherwise directed in writing by a holder as to its Registrable Securities, the number of Registrable Securities to be registered on such Registration Statement will first be reduced by (a) Registrable Securities not acquired pursuant to the Stock Purchase Agreement (whether pursuant to registration rights or otherwise), (b) second by Registrable Securities that are Warrant Shares (applied, in the case that some Warrant Shares may be registered, to the holders on a pro rata basis based on the total number of unregistered Warrant Shares held by such holders), and (c) third by Registrable Securities that are Shares or Conversion Shares (applied, in the case that some Shares and Conversion Shares may be registered, to the holders on a pro rata basis based on the total number of unregistered Shares and Conversion Shares held by such holders, subject to a determination by the SEC that the Shares and Conversion Shares of certain holders must be reduced first based on the number of Shares and Conversion Shares held by such holders).

iv. In the event the Company amends the Initial Registration Statement or files a New Registration Statement, as the case may be, under clause ii. above, the Company will use its commercially reasonable efforts to file with the SEC, as promptly as allowed by the SEC or the SEC Guidance provided to the Company or to registrants of securities in general, one or more registration statements on Form S-3 or such other form available to register for resale those Registrable Securities that were not registered for resale on the Initial Registration Statement, as amended, or the New Registration Statement (the "REMAINDER REGISTRATION STATEMENTS").

#### B. PAYMENTS BY THE COMPANY.

i. If the Initial Registration Statement or the New Registration Statement, as the case may be, is not declared effective by the SEC on or before March 30, 2013 (the "REGISTRATION DEADLINE") or, (ii) if, after a Registration Statement has been declared effective by the SEC, sales of any of the Registrable Securities covered by such Registration Statement cannot be made pursuant to such Registration Statement because such Registration Statement has been suspended (by reason of a stop order or the Company's failure to update the Registration Statement or otherwise) except as a result of a permitted Suspension under Section 9, then the Company will make payments to the Purchasers in such amounts and at such times as shall be determined pursuant

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to this Section 2(B), as liquidated damages and not as a penalty for such delay in or reduction of their ability to sell the Registrable Securities (which remedy shall constitute the Purchasers exclusive monetary remedy). In such event, the Company shall pay to each Purchaser an amount equal to the product of (i) the aggregate purchase price of the Shares then held by such Purchaser which are not able to be sold pursuant to a Registration Statement for such reasons (the "AGGREGATE SHARE PRICE"), multiplied by (ii) one hundredths (.01), for each thirty (30) day period, (A) after the Registration Deadline and prior to the date the Initial Registration Statement or the New Registration Statement, as the case may be, is declared effective by the SEC, and (B) during which sales of any Registrable Securities covered by a Registration Statement cannot be made pursuant to any such Registration Statement after the Registration Statement has been declared effective; provided, however, that there shall be excluded from each such period any delays which are attributable to changes (other than corrections of Company mistakes with respect to information previously provided by the Purchasers) required by the Purchasers in the Registration Statement with respect to information relating to the Purchasers, including, without limitation, changes to the plan of distribution. Such amounts shall be paid in cash within five (5) trading days after the end of each thirty (30) day period that gives rise to such obligation.

ii. Notwithstanding the foregoing, in no event shall the Company be obligated to make payments hereunder (a) to more than one Purchaser in respect of the same Registrable Securities for the same period of time or (b) to any one Purchaser in an aggregate amount that exceeds 10% of the Aggregate Share Price paid by such Purchaser for such Shares. All liquidated damages hereunder shall apply on a daily pro-rata basis for any portion of a 30-day period prior to the cure of any of the events specified in (A) or (B) of this Section 2(B).

iii. The Company shall not be liable for liquidated damages under this Agreement as to any Registrable Securities which are not permitted by the SEC to be included in the Initial Registration Statement or the New Registration Statement due solely to SEC Guidance relating to the inclusion of such Registrable Securities in a Registration Statement from the time that it is determined that such Registrable Securities are not permitted to be registered. In such case, the liquidated damages shall be calculated to only apply to the Registrable Securities which are permitted in accordance with SEC Guidance relating to the inclusion of such Registrable Securities in a Registration Statement to be included in such Initial Registration Statement or such New Registration Statement.

### 3. OBLIGATIONS OF THE COMPANY.

In connection with the registration of the Registrable Securities, the Company shall have the following obligations:

A. The Company shall prepare and file with the SEC such amendments (including post-effective amendments) and supplements to each Registration Statement and the prospectus used in connection with each Registration Statement as may be necessary to keep each such Registration Statement effective pursuant to Rule 415 at all times until no Registrable Securities thereunder remain outstanding (the "REGISTRATION PERIOD"), and, during such period, comply with the provisions of the Securities Act in order to

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enable the disposition of all Registrable Securities of the Company covered by the Registration Statement until such time as all of such Registrable Securities have been disposed of in accordance with the intended methods of disposition by the seller or sellers thereof as set forth in the Registration Statement.

B. In connection with the effectiveness of each Registration Statement, the Company shall furnish to each Purchaser whose Registrable Securities are included in the Registration Statement within three trading days of the date of effectiveness of the Registration Statement or any amendment thereto, a notice stating that the Registration Statement or amendment has been declared effective; and such number of copies of a prospectus, including a preliminary prospectus, and all amendments and supplements thereto and such other documents as such Purchaser may reasonably request in order to facilitate the disposition of the Registrable Securities owned by such Purchaser.

C. The Company shall use its reasonable best efforts to (i) register and qualify the Registrable Securities covered by Registration Statements under such other securities or "blue sky" laws of such jurisdictions in the United States as each Purchaser who holds Registrable Securities being offered reasonably requests, (ii) prepare and file in those jurisdictions such amendments (including post-effective amendments) and supplements to such registrations and qualifications as may be necessary to maintain the effectiveness thereof during the Registration Period, (iii) take such other actions as may be necessary to maintain such registrations and qualifications in effect at all times during the Registration Period, and (iv) take all other actions reasonably necessary or advisable to qualify the Registrable Securities for sale in such jurisdictions; provided, however, that the Company shall not be required in connection therewith or as a condition thereto to (a) qualify to do business in any jurisdiction where it would not otherwise be required to qualify but for this Section 3(C), (b) subject itself to general taxation in any such jurisdiction, (c) file a general consent to service of process in any such jurisdiction, (d) provide any undertakings that cause the Company undue expense or burden, or (e) make any change in its charter or by-laws, which in each case the Board of Directors of the Company determines to be contrary to the best interests of the Company and its stockholders.

D. The Company shall notify each Purchaser who holds Registrable Securities of the time when a supplement to any prospectus forming a part of a Registration Statement has been filed and of any request by the SEC for the amending or supplementing of such Registration Statement or prospectus. If the Company has delivered a Prospectus and after having done so the prospectus is amended to comply with the requirements of the Securities Act, the Company shall promptly notify each Purchaser who holds Registrable Securities covered by such prospectus and, if requested, such Purchasers shall immediately cease making offers of Registrable Securities pursuant to such prospectus and return all copies of such prospectus to the Company. The Company shall promptly provide the Purchasers with revised prospectuses and, following receipt of the revised prospectuses, the Purchasers shall be free to resume making offers of the Registrable Securities.

E. The Company shall provide a transfer agent and registrar, which may be a single entity, for the Registrable Securities not later than the effective date of the Initial Registration Statement or the New Registration Statement, as applicable.

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F. The Company shall cooperate with the Purchasers who hold Registrable Securities to facilitate the timely preparation and delivery of certificates representing Registrable Securities to be offered pursuant to the Registration Statements and enable such certificates to be in such denominations or amounts, as the case may be, as Purchasers may reasonably request and registered in such names as the Purchasers may request.

G. At the reasonable request of the Purchasers holding a majority in interest of the Registrable Securities covered by a Registration Statement, the Company shall prepare and file with the SEC such amendments (including post effective amendments) and supplements to such Registration Statement and the prospectus used in connection with such Registration Statement as may be necessary in order to change the plan of distribution set forth in such Registration Statement.

H. The Company shall use its reasonable best efforts to cause all Registrable Securities registered pursuant to this Agreement to be listed on each securities exchange or trading system on which similar securities issued by the Company are then listed.

4. OBLIGATIONS OF THE PURCHASERS. In connection with the registration of the Registrable Securities, the Purchasers shall have the following obligations:

A. It shall be a condition precedent to the obligations of the Company under Sections 2 and 3 with respect to the Registrable Securities of a particular Purchaser that such Purchaser shall furnish to the Company such information regarding itself, the Registrable Securities held by it and the intended method of disposition of the Registrable Securities held by it as shall be reasonably required to effect the registration of such Registrable Securities and shall execute such documents in connection with such registration as the Company may reasonably request. At least five (5) trading days prior to the first anticipated filing date of the Initial Registration Statement or the New Registration Statement, as the case may be, the Company shall notify each Purchaser of the information the Company requires from each such Purchaser.

B. Each Purchaser, by such Purchaser's acceptance of the Registrable Securities, agrees to cooperate with the Company as reasonably requested by the Company in connection with the preparation and filing of each Registration Statement hereunder, unless such Purchaser has notified the Company in writing of such Purchaser's election to exclude all of such Purchaser's Registrable Securities from such Registration Statement.

C. Each Purchaser agrees that, upon receipt of any notice from the Company of the happening of any event of the kind described in Sections 3(D) or 9, such Purchaser will immediately discontinue disposition of Registrable Securities pursuant to the Registration Statement covering such Registrable Securities until such Purchaser's receipt of the copies of the supplemented or amended prospectus contemplated by Sections 3(D) or 9.

5. EXPENSES OF REGISTRATION. All reasonable expenses incurred by the Company or the Purchasers in connection with registrations, filings or qualifications pursuant to Sections 2 and 3 above, including, without limitation, all registration, listing and qualifications fees, printers and accounting fees, the fees and disbursements of counsel for the Company and the fees and disbursements of one counsel selected by the Purchasers, shall be borne by the Company, excluding underwriting discounts, selling commissions and similar costs which shall be borne by the Purchasers.



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6. INDEMNIFICATION. In the event any Registrable Securities are included in a Registration Statement under this Agreement:

A. To the extent permitted by law, the Company will indemnify, hold harmless and defend (i) each Purchaser who holds such Registrable Securities, and (ii) the directors, officers, partners, members, employees and agents of such Purchaser and each person who controls any Purchaser within the meaning of Section 15 of the Securities Act or Section 20 of the Securities Exchange Act of 1934, as amended (the "EXCHANGE ACT"), if any, (each, an "INDEMNIFIED PERSON"), against any joint or several losses, claims, damages, liabilities or expenses (collectively, together with actions, proceedings or inquiries by any regulatory or self-regulatory organization, whether commenced or threatened, in respect thereof, "CLAIMS") to which any of them may become subject insofar as such Claims arise out of or are based upon: (i) any untrue statement or alleged untrue statement of a material fact in a Registration Statement or the omission or alleged omission to state therein a material fact required to be stated or necessary to make the statements therein not misleading, (ii) any untrue statement or alleged untrue statement of a material fact contained in any preliminary prospectus if used prior to the effective date of such Registration Statement, or contained in the final prospectus (as amended or supplemented, if the Company files any amendment thereof or supplement thereto with the SEC) or the omission or alleged omission to state therein any material fact necessary to make the statements made therein, in light of the circumstances under which the statements therein were made, not misleading, or (iii) any violation or alleged violation by the Company of the Securities Act, the Exchange Act, any other law, including, without limitation, any state securities law, or any rule or regulation thereunder relating to the offer or sale of the Registrable Securities (the matters in the foregoing clauses (i) through (iii), collectively, "VIOLATIONS"). Subject to the restrictions set forth in Section 6(C) with respect to the number of legal counsel, the Company shall reimburse the Purchasers and each other Indemnified Person, promptly as such expenses are incurred and are due and payable, for any reasonable legal fees or other reasonable expenses incurred by them in connection with investigating or defending any such Claim. Notwithstanding anything to the contrary contained herein, the obligations of the Company contained in this Section 6(A): (i) shall not apply to a Claim arising out of or based upon (A) a Violation which occurs in reliance upon and in conformity with information furnished in writing to the Company by such Indemnified Person expressly for use in the Registration Statement or any such amendment thereof or supplement thereto, (B) the failure of a Purchaser to comply with Section 4(C) or (C) the use by a Purchaser in connection with any sale or sales of Registrable Securities of a prospectus containing any untrue statement or omission of a material fact following notification by the Company that such prospectus contains an untrue statement or omission of a material fact and receipt by the Purchaser of a corrected prospectus; and (ii) shall not apply to amounts paid in settlement of any Claim if such settlement is effected without the prior written consent of the Company, which consent shall not be unreasonably withheld. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of the Indemnified Person and shall survive the transfer of the Registrable Securities by the Purchasers pursuant to Section 10 hereof.

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B. Each Purchaser who holds such Registrable Securities agrees severally and not jointly to indemnify, hold harmless and defend, to the same extent and in the same manner set forth in Section 6(A), the Company, each of its directors, each of its officers who signs the Registration Statement, its employees, agents and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, and any other stockholder selling securities pursuant to the Registration Statement or any of its directors or officers or any person who controls such stockholder within the meaning of the Securities Act or the Exchange Act (collectively and together with an Indemnified Person, an "INDEMNIFIED PARTY"), against any Claim to which any of them may become subject, under the Securities Act, the Exchange Act or otherwise, insofar as such Claim arises out of or is based upon any Violation, in each case to the extent (and only to the extent) that such Violation occurs in reliance upon and in conformity with written information furnished to the Company by such Purchaser expressly for use in connection with such Registration Statement; and subject to Section 6(C) such Purchaser will reimburse any legal or other expenses (promptly as such expenses are incurred and are due and payable) reasonably incurred by them in connection with investigating or defending any such Claim; provided, however, that (I) the obligations of a Purchaser contained in this Section 6(B) shall not apply to amounts paid in settlement of any Claim if such settlement is effected without the prior written consent of such Purchaser, which consent shall not be unreasonably withheld, and (II) the Purchaser shall be liable under this Agreement (including this Section 6(B) and Section 7) for only that amount as does not exceed the gross proceeds actually received by such Purchaser as a result of the sale of Registrable Securities pursuant to such Registration Statement. Such indemnity shall remain in full force and effect regardless of any investigation made by or on behalf of such Indemnified Party and shall survive the transfer of the Registrable Securities by the Purchasers pursuant to Section 10 hereof.

C. Promptly after receipt by an Indemnified Person or Indemnified Party under this Section 6 of notice of the threat or commencement of any action (including any governmental action), such Indemnified Person or Indemnified Party shall, if a Claim in respect thereof is to be made against any indemnifying party under this Section 6, deliver to the indemnifying party a written notice of the commencement thereof, and the indemnifying party shall have the right to participate in, and, to the extent the indemnifying party so desires, jointly with any other indemnifying party similarly notified, to assume control of the defense thereof with counsel mutually satisfactory to the indemnifying party and the Indemnified Person or the Indemnified Party, as the case may be; provided, however, that such indemnifying party shall not be entitled to assume such defense and an Indemnified Person or Indemnified Party shall have the right to retain its own counsel with the fees and expenses to be paid by the indemnifying party, if, in the reasonable opinion of counsel retained by the indemnifying party, the representation by such counsel of the Indemnified Person or Indemnified Party and the indemnifying party would be inappropriate due to actual or potential conflicts of interest between such Indemnified Person or Indemnified Party and any other party represented by such counsel in such proceeding or the actual or potential defendants in, or targets of, any such action include both the Indemnified Person or the Indemnified Party and the indemnifying party and any such Indemnified Person or Indemnified Party reasonably determines, based upon the reasonable opinion of counsel, that there may be legal defenses available to such Indemnified Person or Indemnified Party which are in conflict with those available to such indemnifying party. The indemnifying party shall pay for only one separate legal counsel for the Indemnified Persons or the Indemnified Parties, as applicable, and such legal counsel shall be selected by Purchasers holding a majority-in-interest of the Registrable Securities included in the Registration Statement to which the Claim relates (with the approval of the Purchasers if it holds Registrable Securities included in such Registration Statement), if the Purchasers are entitled to indemnification hereunder, or by the Company, if the Company is entitled to indemnification hereunder, as applicable. The failure to deliver written notice to the indemnifying party within a reasonable time of the commencement of any such action shall not relieve such indemnifying party of any liability to the Indemnified Person or Indemnified Party under this Section 6, except to the extent that the indemnifying party is actually prejudiced in its ability to defend such action.

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D. The Indemnified Party shall cooperate fully with the indemnifying party in connection with any negotiation or defense of any such action or claim by the indemnifying party and shall furnish to the indemnifying party all information reasonably available to the Indemnified Party which relates to such action or claim.

E. No indemnifying party shall, except with the consent of each Indemnified Party (which consent shall not be unreasonably withheld), consent to entry of any judgment or enter into any settlement which does not include the giving by the claimant to such Indemnified Party a release from all liability in respect to such claim or litigation.

7. CONTRIBUTION. To the extent any indemnification by an indemnifying party required by the terms of this Agreement is prohibited or limited by law, the indemnifying party, in lieu of indemnifying the Indemnified Party, agrees to contribute with respect to any amounts for which it would otherwise be liable under Section 6 up to the amount paid or payable by the indemnifying party as a result of the Claims in such proportion as is appropriate to reflect the relative fault of the indemnifying party, on the one hand, and the Indemnified Person or Indemnified Party, as the case may be, on the other hand, with respect to the Violation giving rise to the applicable Claim; provided, however, that (i) no contribution shall be made under circumstances where the maker would not have been liable for indemnification under the fault standards set forth in Section 6, (ii) no person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any seller of Registrable Securities who was not guilty of such fraudulent misrepresentation, and (iii) contribution (together with any indemnification or other obligations under this Agreement) by any seller of Registrable Securities shall be limited in amount to the amount of gross proceeds received by such seller from the sale of such Registrable Securities. The relative fault of the Company and the Purchasers shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of material fact related to information supplied by the Company or the Purchasers and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission.

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8. REPORTS UNDER THE EXCHANGE ACT. With a view to making available to the Purchasers the benefits of Rule 144 promulgated under the Securities Act or any other similar rule or regulation of the SEC that may at any time permit each Purchaser to sell securities of the Company to the public, so long as the Registration Statement is effective and such Purchaser holds Registrable Securities, without registration ("RULE 144"), the Company agrees to:

i. file with the SEC in a timely manner and make and keep available all reports and other documents required of the Company under the Securities Act and the Exchange Act so long as the Company remains subject to such requirements and the filing and availability of such reports and other documents is required for the applicable provisions of Rule 144; and

ii. furnish to each Purchaser so long as such Purchaser owns Registrable Securities, promptly upon request, (i) a written statement by the Company that it has complied with the reporting requirements of Rule 144, the Securities Act and the Exchange Act, (ii) a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company, and (iii) such other information as may be reasonably requested to permit the Purchasers to sell such securities under Rule 144 without registration.

9. SUSPENSION OF USE OF PROSPECTUS. Subject to Section 2(B), the Company may, by written notice to the Purchasers, (i) delay the filing of, or effectiveness of, a Registration Statement; or (ii) suspend such Registration Statement after effectiveness and require that the Purchasers immediately cease sales of Registrable Securities pursuant to such Registration Statement, if (a) the Company reasonably believes that there is or may be in existence material nonpublic information or events involving the Company, the failure of which to be disclosed in the prospectus included in the registration statement would result in a Violation, and (b) the Company shall furnish to the Purchasers a certificate signed by the Chairman of the Board of Directors of the Company stating that in the good faith judgment of the Board of Directors of the Company, it would have a material adverse effect on the Company (which for this purpose shall include a material adverse effect on a pending transaction) to disclose such material nonpublic information or events in the prospectus included in the registration statement (a "SUSPENSION"). The Company shall not disclose such information or events to any Purchaser. If the Company requires the Purchasers to cease sales of Registrable Securities pursuant to a Suspension, the Company shall, as promptly as practicable following the termination of the circumstance which entitled the Company to do so, take such actions as may be necessary to reinstate the effectiveness of the Registration Statements covering such Registrable Securities, and/or give written notice to the Purchasers authorizing them to resume sales pursuant to the Registration Statements. If, as a result thereof, the prospectuses included in the Registration Statements have been amended to comply with the requirements of the Securities Act, the Company shall enclose such revised prospectuses with the notice to the Purchasers given pursuant hereto, and the Purchasers shall make no offers or sales of Registrable Securities pursuant to the Registration Statements other than by means of such revised prospectus. The Company shall not cause a Suspension on more than two occasions during any twelve (12) month period or for more than thirty (30) days per such occasion.

10. ASSIGNMENT OF REGISTRATION RIGHTS. The rights of the Purchasers hereunder, including the right to have the Company register Registrable Securities pursuant to this Agreement, shall be automatically assignable by each Purchaser to any affiliate of the Purchaser to which all or any portion of the Registrable Securities are transferred if: (i) the Purchaser agrees in writing with the transferee or assignee to assign such rights, and a copy of such agreement is furnished to the Company after such assignment, (ii) the Company is furnished with written notice of (a) the name and address of such transferee or assignee, and (b) the securities with respect to which such registration rights are being transferred or assigned, (iii) the transferee or assignee agrees in writing for the benefit of the Company to be bound by all of the provisions contained herein, and (iv) such transfer shall have been made in accordance with the applicable requirements of the Stock Purchase Agreement and the Warrants, as applicable.

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11. AMENDMENT OF REGISTRATION RIGHTS. Provisions of this Agreement may be amended and the observance thereof may be waived (either generally or in a particular instance and either retroactively or prospectively), only with written consent of the Company and Purchasers who hold a majority in interest of the Registrable Securities; provided, however, that no consideration shall be paid to a Purchaser by the Company in connection with an amendment hereto unless each Purchaser similarly affected by such amendment receives a pro-rata amount of consideration from the Company. Unless a Purchaser otherwise agrees, each amendment hereto must similarly affect each Purchaser. Any amendment or waiver effected in accordance with this Section 11 shall be binding upon each Purchaser and the Company.

12. MISCELLANEOUS.

A. A person or entity is deemed to be a holder of Registrable Securities whenever such person or entity owns of record such Registrable Securities. If the Company receives conflicting instructions, notices or elections from two or more persons or entities with respect to the same Registrable Securities, the Company shall act upon the basis of instructions, notice or election received from the registered owner of such Registrable Securities.

B. All notices required or permitted hereunder shall be in writing and shall be deemed effectively given: (i) upon delivery to the party to be notified, (ii) when received by email or confirmed facsimile, or (iii) one (1) business day after deposit with a nationally recognized overnight carrier, specifying next business day delivery, with written verification of receipt. All communications shall be sent to the Company and the Purchasers as follows or at such other addresses as the Company or the Purchasers may designate upon ten (10) days' advance written notice to the other party:

If to the Company:

Idera Pharmaceuticals, Inc.  
167 Sidney Street  
Cambridge, MA 02139  
Attn: Chief Executive Officer  
Fax: (617)-679-5592  
Email: [sagrawal@iderapharma.com](mailto:sagrawal@iderapharma.com)

with a copy simultaneously transmitted by like means to:

Wilmer Cutler Pickering Hale and Dorr LLP  
60 State Street  
Boston, Massachusetts 02109  
Attn: Stuart Falber  
Fax: (617) 526-5000  
Email: [stuart.falber@wilmerhale.com](mailto:stuart.falber@wilmerhale.com)

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If to a Purchaser, at its address as set forth on the Schedule of Purchasers attached to the Stock Purchase Agreement.

C. Failure of any party to exercise any right or remedy under this Agreement or otherwise, or delay by a party in exercising such right or remedy, shall not operate as a waiver thereof.

D. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware without regard to principles of conflicts of law.

E. This Agreement, the Stock Purchase Agreement (including all schedules and exhibits thereto) and the Warrants constitute the entire agreement among the parties hereto with respect to the subject matter hereof and thereof. There are no restrictions, promises, warranties or undertakings, other than those set forth or referred to herein and therein. This Agreement, the Stock Purchase Agreement and the Warrants supersede all prior agreements and understandings among the parties hereto with respect to the subject matter hereof and thereof.

F. Subject to the requirements of Section 10 hereof, this Agreement shall inure to the benefit of and be binding upon the successors and assigns of each of the parties hereto.

G. The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

H. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original but all of which shall constitute one and the same agreement. This Agreement, once executed by a party, may be delivered to the other party hereto by facsimile transmission of a copy of this Agreement bearing the signature of the party so delivering this Agreement.

I. Each party shall do and perform, or cause to be done and performed, all such further acts and things, and shall execute and deliver all such other agreements, certificates, instruments and documents, as the other party may reasonably request in order to carry out the intent and accomplish the purposes of this Agreement and the consummation of the transactions contemplated hereby.

J. All consents, approvals and other determinations to be made by the Purchasers pursuant to this Agreement shall be made by the Purchasers holding a majority in interest of the Registrable Securities (determined as if all Shares and Warrant Shares then outstanding had been converted into or exercised for Registrable Securities) held by all Purchasers.

K. Each party to this Agreement has participated in the negotiation and drafting of this Agreement. As such, the language used herein shall be deemed to be the language chosen by the parties hereto to express their mutual intent, and no rule of strict construction will be applied against any party to this Agreement.

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L. For purposes of this Agreement, the term “Business Day” means any day other than a Saturday or Sunday or a day on which banking institutions in the State of New York are authorized or obligated by law, regulation or executive order to close, and the term “Trading Day” means any day on which the Nasdaq Global Market, or if the Common Stock is not then traded on the Nasdaq Global Market the principal securities exchange or trading market where the Common Stock is then listed or traded, is open for trading.

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IN WITNESS WHEREOF, the parties have caused this Agreement to be duly executed as of the date first above written.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal  
Name: Sudhir Agrawal  
Its: Chairman, Chief Executive Officer and President

[SIGNATURE PAGE TO REGISTRATION RIGHTS AGREEMENT]



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PURCHASERS:

PILLAR PHARMACEUTICALS II, L.P.

By: /s/ Youssef El Zein

Name: Youssef El Zein

Title: General Partner

PARTICIPATIONS BESANCON

By: Pillar Invest Corporation, as attorney-in-fact

By: /s/ Youssef El Zein

Name: Youssef El Zein

Title: as per power of attorney of November 9th,  
2012

[SIGNATURE PAGE TO REGISTRATION RIGHTS AGREEMENT]

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EXHIBIT A

Purchasers

Pillar Pharmaceuticals II, L.P.

Participations Besancon

**THIS WARRANT AND THE SHARES OF COMMON STOCK ISSUED UPON  
ITS EXERCISE ARE SUBJECT TO THE RESTRICTIONS ON  
TRANSFER SET FORTH IN SECTION 5 OF THIS  
WARRANT AND ARTICLE 6 OF THE PURCHASE AGREEMENT**

Warrant No. \_\_\_\_\_

Number of Shares: \_\_\_\_\_  
(subject to adjustment)

Original Issue Date: November \_\_, 2012

Common Stock Purchase Warrant

(Void after November 9, 2017)

Idera Pharmaceuticals, Inc., a Delaware corporation (the "Company"), for value received, hereby certifies that \_\_\_\_\_, or its registered assigns (the "Registered Holder"), is entitled, subject to the terms and conditions set forth below, to purchase from the Company, at any time or from time to time on or after the date of issuance and on or before 5:00 p.m. (Boston time) on November 9, 2017, \_\_\_\_\_ shares of Common Stock, \$0.001 par value per share, of the Company ("Common Stock"), at a purchase price of \$\_\_\_\_ per share. The shares purchasable upon exercise of this Warrant, and the purchase price per share, each as adjusted from time to time pursuant to the provisions of this Warrant, are hereinafter referred to as the "Warrant Shares" and the "Purchase Price," respectively.

This Warrant is one in a series of warrants (the "Series Warrant") issued pursuant to that certain Convertible Preferred Stock and Warrant Purchase Agreement, dated November 9, 2012, among the Company, the Registered Holder and the other parties thereto (the "Purchase Agreement").

1. Exercise.

(a) Exercise for Cash. The Registered Holder may, at its option, elect to exercise this Warrant, in whole or in part and at any time or from time to time, by surrendering this Warrant, with the purchase form appended hereto as Exhibit I duly executed by or on behalf of the Registered Holder, at the principal office of the Company, or at such other office or agency as the Company may designate, accompanied by payment in full, in lawful money of the United States, of the Purchase Price payable in respect of the number of Warrant Shares purchased upon such exercise.

(b) Cashless Exercise.

(i) During such periods as there is not an effective registration statement under the Securities Act of 1933, as amended (the “Securities Act”), registering, and no current prospectus available for, the resale by the Registered Holder of any Warrant Shares (except to the extent due to any actions or inactions of the Registered Holders under the Registration Rights Agreement dated as of November 9, 2012 by and among the Company and the Purchasers (as defined therein)), the Registered Holder may, at its option, elect to exercise this Warrant, in whole or in part, on a cashless basis, by surrendering this Warrant, with the purchase form appended hereto as Exhibit I duly executed by or on behalf of the Registered Holder, at the principal office of the Company, or at such other office or agency as the Company may designate, by canceling a portion of this Warrant in payment of the Purchase Price payable in respect of the number of Warrant Shares purchased upon such exercise. In the event of an exercise pursuant to this subsection 1(b), the number of Warrant Shares issued to the Registered Holder shall be determined according to the following formula:

$$X = \frac{Y(A-B)}{A}$$

Where: X = the number of Warrant Shares that shall be issued to the Registered Holder;

Y = the number of Warrant Shares for which this Warrant is being exercised (which shall include both the number of Warrant Shares issued to the Registered Holder and the number of Warrant Shares subject to the portion of the Warrant being cancelled in payment of the Purchase Price);

A = the Fair Market Value (as defined below) of one share of Common Stock; and

B = the Purchase Price then in effect.

(ii) The Fair Market Value per share of Common Stock shall be determined as follows:

(A) If the Common Stock is listed on a national securities exchange, or another nationally recognized trading system as of the Exercise Date, the Fair Market Value per share of Common Stock shall be deemed to be the average of the high and low reported sale prices per share of Common Stock thereon on the trading day immediately preceding the Exercise Date (provided that if no such price is reported on such day, the Fair Market Value per share of Common Stock shall be determined pursuant to clause (B)).

(B) If the Common Stock is not listed on a national securities exchange or another nationally recognized trading system as of the Exercise Date, the Fair Market Value per share of Common Stock shall be deemed to be the amount most recently determined by the Board of Directors of the Company (the "Board") to represent the fair market value per share of the Common Stock (including without limitation a determination for purposes of granting Common Stock options or issuing Common Stock under any plan, agreement or arrangement with employees of the Company); and, upon request of the Registered Holder, the Board (or a representative thereof) shall, as promptly as reasonably practicable but in any event not later than 10 days after such request, notify the Registered Holder of the Fair Market Value per share of Common Stock and furnish the Registered Holder with reasonable documentation of the Board's determination of such Fair Market Value. Notwithstanding the foregoing, if the Board has not made such a determination within the three-month period prior to the Exercise Date, then (A) the Board shall make, and shall provide or cause to be provided to the Registered Holder notice of, a determination of the Fair Market Value per share of the Common Stock within 15 days of a request by the Registered Holder that it do so, and (B) the exercise of this Warrant pursuant to this subsection 1(b) shall be delayed until such determination is made and notice thereof is provided to the Registered Holder.

(c) Exercise Date. Each exercise of this Warrant shall be deemed to have been effected immediately prior to the close of business on the day on which this Warrant shall have been surrendered to the Company as provided in subsection 1(a) or 1(b) above (the "Exercise Date"). At such time, the person or persons in whose name or names any certificates for Warrant Shares shall be issuable upon such exercise as provided in subsection 1(d) below shall be deemed to have become the holder or holders of record of the Warrant Shares represented by such certificates.

(d) Issuance of Certificates. The Company, at its expense, shall use its best efforts, as soon as practicable after the exercise of this Warrant in whole or in part, and in any event within three (3) business days thereafter, to cause to be issued in the name of, and delivered to, the Registered Holder, or as the Registered Holder (upon payment by the Registered Holder of any applicable transfer taxes) may direct:

(i) a certificate or certificates for the number of full Warrant Shares to which the Registered Holder shall be entitled upon such exercise plus, in lieu of any fractional share to which the Registered Holder would otherwise be entitled, cash in an amount determined pursuant to Section 3 hereof; and

(ii) in case such exercise is in part only, a new Warrant or Warrants (dated the date hereof) of like tenor, calling in the aggregate on the face or faces thereof for the number of Warrant Shares equal (without giving effect to any adjustment therein) to the number of such shares called for on the face of this Warrant minus the number of Warrant Shares for which this Warrant was so exercised (which, in the case of an exercise pursuant to subsection 1(b), shall include both the number of Warrant Shares issued to the Registered Holder pursuant to such partial exercise and the number of Warrant Shares subject to the portion of the Warrant being cancelled in payment of the Purchase Price).

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(e) Exercise Limitation. Notwithstanding anything to the contrary contained herein, the Company shall not effect any exercise of this Warrant and the Registered Holder shall not be entitled to exercise this Warrant for a number of Warrant Shares in excess of that number of Warrant Shares which, upon giving effect to such exercise, would cause (i) the aggregate number of shares of Common Stock beneficially owned by the Registered Holder and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the Registered Holder's for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), to exceed 19.99% of the total number of issued and outstanding shares of Common Stock of the Company following such exercise, or (ii) the combined voting power of the securities of the Company beneficially owned by the Registered Holder and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the holder's for purposes of Section 13(d) of the Exchange Act to exceed 19.99% of the combined voting power of all of the securities of the Company then outstanding following such exercise, unless, in either case, the stockholders of the Company approve the Nasdaq Proposal (as defined by and in accordance with Section 5.11(B) of the Purchase Agreement), in which case, the 19.99% limitation under clause (i) and clause (ii) of this Section 1(e) shall be increased, with respect to the Registered Holder, to 35% for purposes of both clause (i) and clause (ii) of this Section 1(e). For purposes of this Section 1(e), the aggregate number of shares of Common Stock or voting securities beneficially owned by the Registered Holder and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the Registered Holder's for purposes of Section 13(d) of the Exchange Act shall include the shares of Common Stock issuable upon the exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining unexercised and non-cancelled portion of this Warrant by the Registered Holder and (ii) exercise or conversion of the unexercised, non-converted or non-cancelled portion of any other securities of the Company that do not have voting power (including without limitation any securities of the Company which would entitle the holder thereof to acquire at any time Common Stock, including without limitation any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock), subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Registered Holder or any of its affiliates and other persons whose beneficial ownership of Common Stock would be aggregated with the Registered Holder's for purposes of Section 13(d) of the Exchange Act.

## 2. Adjustments.

(a) Adjustment for Stock Splits and Combinations. If the Company shall at any time or from time to time after the Original Issue Date effect a subdivision of the outstanding Common Stock, the Purchase Price then in effect immediately before that subdivision shall be proportionately decreased. If the Company shall at any time or from time to time after the Original Issue Date combine the outstanding shares of Common Stock, the Purchase Price then in effect immediately before the combination shall be proportionately increased. Any adjustment under this paragraph shall become effective at the close of business on the date the subdivision or combination becomes effective.

(b) Adjustment for Certain Dividends and Distributions. In the event the Company at any time, or from time to time after the Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in additional shares of Common Stock, then and in each such event the Purchase Price then in effect immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Purchase Price then in effect by a fraction:

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(A) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(B) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution;

provided, however, that if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Purchase Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Purchase Price shall be adjusted pursuant to this paragraph as of the time of actual payment of such dividends or distributions.

(c) Adjustment in Number of Warrant Shares. When any adjustment is required to be made in the Purchase Price pursuant to subsections 2(a) or 2(b), the number of Warrant Shares purchasable upon the exercise of this Warrant shall be changed to the number determined by dividing (i) an amount equal to the number of shares issuable upon the exercise of this Warrant immediately prior to such adjustment, multiplied by the Purchase Price in effect immediately prior to such adjustment, by (ii) the Purchase Price in effect immediately after such adjustment.

(d) Adjustments for Other Dividends and Distributions. In the event the Company at any time or from time to time after the Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Company (other than shares of Common Stock) or in cash or other property (other than regular cash dividends paid out of earnings or earned surplus, determined in accordance with generally accepted accounting principles), then and in each such event provision shall be made so that the Registered Holder shall receive upon exercise hereof, in addition to the number of shares of Common Stock issuable hereunder, the kind and amount of securities of the Company, cash or other property which the Registered Holder would have been entitled to receive had this Warrant been exercised on the date of such event and had the Registered Holder thereafter, during the period from the date of such event to and including the Exercise Date, retained any such securities receivable during such period, giving application to all adjustments called for during such period under this Section 2 with respect to the rights of the Registered Holder.

(e) Adjustment for Reorganization. If there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Company in which the Common Stock is converted into or exchanged for securities, cash or other property (other than a transaction covered by subsections 2(a), 2(b) or 2(d)) (collectively, a "Reorganization"), then, following such Reorganization, the Registered Holder shall receive upon exercise hereof the kind and amount of securities, cash or other property which the Registered Holder would have been entitled to receive pursuant to such Reorganization if such exercise had taken place immediately prior to such Reorganization. In any such case, appropriate adjustment (as determined in good faith by the Board) shall be made in the application of the provisions set forth herein with respect to the rights and interests thereafter of the Registered Holder, to the end that the provisions set forth in this Section 2 (including provisions with respect to changes in and other adjustments of the Purchase Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities, cash or other property thereafter deliverable upon the exercise of this Warrant.

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(f) Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Purchase Price pursuant to this Section 2, the Company at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to the Registered Holder a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property for which this Warrant shall be exercisable and the Purchase Price) and showing in detail the facts upon which such adjustment or readjustment is based. The Company shall, as promptly as reasonably practicable after the written request at any time of the Registered Holder (but in any event not later than ten (10) days thereafter), furnish or cause to be furnished to the Registered Holder a certificate setting forth (i) the Purchase Price then in effect and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the exercise of this Warrant.

3. Fractional Shares. The Company shall not be required upon the exercise of this Warrant to issue any fractional shares, but shall pay the value thereof to the Registered Holder in cash on the basis of the Fair Market Value per share of Common Stock, as determined pursuant to subsection 1(b)(ii) above.

4. Redemption of Warrants.

(a) At any time after November 9, 2014, subject to the terms of this Section 4, the Company shall have the right to redeem all or a portion of this Warrant for a redemption price (the "Redemption Price") equal to the result obtained by multiplying (i) \$0.01 by (ii) the number of Warrant Shares that the Registered Holder is entitled to purchase upon exercise of all or the portion of this Warrant that is being redeemed (such Redemption Price being subject to adjustment for stock splits, stock dividends, combinations, recapitalizations, reclassifications, and similar transactions affecting the Common Stock).

(b) The Company shall exercise this redemption right by providing at least 30 days' prior written notice to the Registered Holder of such redemption (the "Redemption Notice"). Such Redemption Notice shall be provided to the Registered Holder in accordance with Section 19 of this Warrant. The Redemption Notice shall specify the time, manner and place of redemption, including without limitation the date on which this Warrant shall be redeemed (the "Redemption Date") and the Redemption Price payable to the Registered Holder (assuming that this Warrant is not exercised on or prior to the Redemption Date).

(c) Notwithstanding the foregoing, the Company may not redeem this Warrant or provide the Redemption Notice to the Registered Holder (i) unless the closing sales price of the Common Stock for twenty (20) or more trading days in a period of thirty (30) consecutive trading days ending within thirty (30) days prior to the date the Company provides the Redemption Notice to the Registered Holder is greater than or equal to \$\_\_\_\_ (subject to adjustment for stock splits, stock dividends, combinations, recapitalizations, reclassifications, and similar transactions affecting the Common Stock) and (ii) with respect to any portion of this Warrant which may not be exercised by the Registered Holder as of the time of the Redemption Notice under Section 1(e).



(d) This Warrant shall cease to be exercisable and shall be terminated and of no further force or effect effective at 5:00 p.m. (Boston time) on the Redemption Date. If the Registered Holder does not exercise this Warrant on or prior to the Redemption Date, the Registered Holder shall surrender this Warrant to the Company on the Redemption Date for cancellation. From and after the Redemption Date, the Registered Holder's sole right hereunder shall be to receive the Redemption Price, without interest, upon presentation and surrender of this Warrant for cancellation.

(e) Notwithstanding anything to the contrary set forth in this Section 4, no redemptions may be effected by the Company pursuant to this Section 4 unless and until such redemption has been approved by a majority in number of the directors of the Company that are not affiliated with any holder of the Series E Preferred Stock or the Series Warrants and were not elected as a director of the Corporation as a result of being nominated or submitted for consideration by any holder of the Series E Preferred Stock or Series Warrants or any affiliate thereof.

#### 5. Transfers, etc.

(a) This Warrant and the Warrant Shares shall not be sold or transferred unless either (i) they first shall have been registered under the Securities Act, or (ii) the Company first shall have been furnished with an opinion of legal counsel, reasonably satisfactory to the Company, to the effect that such sale or transfer is exempt from the registration requirements of the Securities Act. Notwithstanding the foregoing, no registration or opinion of counsel shall be required for (i) a transfer by a Registered Holder which is an entity to a wholly owned subsidiary of such entity, a transfer by a Registered Holder which is a partnership to a partner of such partnership or a retired partner of such partnership or to the estate of any such partner or retired partner, or a transfer by a Registered Holder which is a limited liability company to a member of such limited liability company or a retired member or to the estate of any such member or retired member, provided that the transferee in each case agrees in writing to be subject to the terms of this Section 5, or (ii) a transfer made in accordance with Rule 144 under the Securities Act.

(b) Each certificate representing Warrant Shares shall bear a legend substantially in the following form:

“The securities represented by this certificate have not been registered under the Securities Act of 1933, as amended, and may not be offered, sold or otherwise transferred, pledged or hypothecated unless and until such securities are registered under such Act or an opinion of counsel satisfactory to the Company is obtained to the effect that such registration is not required.”

The foregoing legend shall be removed from the certificates representing any Warrant Shares, at the request of the holder thereof, at such time as (i) a period of at least one year, as determined in accordance with paragraph (d) of Rule 144 under the Act, has elapsed since the later of the date the Warrant Shares were acquired from the Company or an affiliate of the Company, and (ii) the Warrant Shares become eligible for resale pursuant to Rule 144(b)(1)(i) under the Securities Act.

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(c) The Company will maintain a register containing the name and address of the Registered Holder of this Warrant. The Registered Holder may change its address as shown on the warrant register by written notice to the Company requesting such change.

(d) Subject to the provisions of Section 5 hereof, this Warrant and all rights hereunder are transferable, in whole or in part, upon surrender of this Warrant with a properly executed assignment (in the form of Exhibit II hereto) at the principal office of the Company (or, if another office or agency has been designated by the Company for such purpose, then at such other office or agency).

(e) This Warrant and the Warrant Shares shall be subject to the restrictions on transfer set forth in Article 6 of the Purchase Agreement.

6. Notices of Record Date, etc. In the event:

(a) the Company shall take a record of the holders of its Common Stock (or other stock or securities at the time deliverable upon the exercise of this Warrant) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of stock of any class or any other securities, or to receive any other right; or

(b) of any capital reorganization of the Company, any reclassification of the Common Stock of the Company, any consolidation or merger of the Company with or into another corporation (other than a consolidation or merger in which the Company is the surviving entity and its Common Stock is not converted into or exchanged for any other securities or property), or any transfer of all or substantially all of the assets of the Company; or

(c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Company,

then, and in each such case, the Company will send or cause to be sent to the Registered Holder a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other stock or securities at the time deliverable upon the exercise of this Warrant) shall be entitled to exchange their shares of Common Stock (or such other stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up. Such notice shall be sent at least ten (10) days prior to the record date or effective date for the event specified in such notice.

7. Reservation of Stock. The Company will at all times reserve and keep available, solely for issuance and delivery upon the exercise of this Warrant, such number of Warrant Shares and other securities, cash and/or property, as from time to time shall be issuable upon the exercise of this Warrant.

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8. Exchange or Replacement of Warrants.

(a) Upon the surrender by the Registered Holder, properly endorsed, to the Company at the principal office of the Company, the Company will, subject to the provisions of Section 5 hereof, issue and deliver to or upon the order of the Registered Holder, at the Company's expense, a new Warrant or Warrants of like tenor, in the name of the Registered Holder or as the Registered Holder (upon payment by the Registered Holder of any applicable transfer taxes) may direct, calling in the aggregate on the face or faces thereof for the number of shares of Common Stock (or other securities, cash and/or property) then issuable upon exercise of this Warrant.

(b) Upon receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and (in the case of loss, theft or destruction) upon delivery of an indemnity agreement (with surety if reasonably required) in an amount reasonably satisfactory to the Company, or (in the case of mutilation) upon surrender and cancellation of this Warrant, the Company will issue, in lieu thereof, a new Warrant of like tenor.

9. Notices. All notices and other communications from the Company to the Registered Holder in connection herewith shall be mailed by certified or registered mail, postage prepaid, sent by email or confirmed facsimile or sent via a reputable nationwide overnight courier service guaranteeing next business day delivery, to the address last furnished to the Company in writing by the Registered Holder. All notices and other communications from the Registered Holder to the Company in connection herewith shall be mailed by certified or registered mail, postage prepaid, sent by email or confirmed facsimile or sent via a reputable nationwide overnight courier service guaranteeing next business day delivery, to the Company at its principal office set forth below. If the Company should at any time change the location of its principal office to a place other than as set forth below, it shall give prompt written notice to the Registered Holder and thereafter all references in this Warrant to the location of its principal office at the particular time shall be as so specified in such notice. All such notices and communications shall be deemed delivered (i) two (2) business days after being sent by certified or registered mail, return receipt requested, postage prepaid, (ii) upon receipt of email or confirmed facsimile or (iii) one (1) business day after being sent via a reputable nationwide overnight courier service guaranteeing next business day delivery.

Notices and other communications from the Registered Holder to the Company shall be sent to:

Idera Pharmaceuticals, Inc.  
167 Sidney Street  
Cambridge, MA 02139  
Attention: Chief Executive Officer  
Facsimile: (617) 679-5592  
Email: sagrawal@iderapharma.com

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with a copy to:

Wilmer Cutler Pickering Hale and Dorr LLP  
60 State Street  
Boston, Massachusetts 02109  
Attention: Stuart Falber  
Facsimile: (617) 526-5000 Email: stuart.falber@wilmerhale.com

10. No Rights as Stockholder. Until the exercise of this Warrant, the Registered Holder shall not have or exercise any rights by virtue hereof as a stockholder of the Company. Notwithstanding the foregoing, in the event (i) the Company effects a split of the Common Stock by means of a stock dividend and the Purchase Price of and the number of Warrant Shares are adjusted as of the date of the distribution of the dividend (rather than as of the record date for such dividend), and (ii) the Registered Holder exercises this Warrant between the record date and the distribution date for such stock dividend, the Registered Holder shall be entitled to receive, on the distribution date, the stock dividend with respect to the shares of Common Stock acquired upon such exercise, notwithstanding the fact that such shares were not outstanding as of the close of business on the record date for such stock dividend.

11. Amendment or Waiver. Any term of this Warrant may be amended or waived only by an instrument in writing signed by the Company and the holders of Series Warrants exercisable for a number of shares of Common Stock equal to more than 50% of the total number of shares of Common Stock issuable upon exercise of all Series Warrants. No waivers of any term, condition or provision of this Warrant, in any one or more instances, shall be deemed to be, or construed as, a further or continuing waiver of any such term, condition or provision.

12. Section Headings. The section headings in this Warrant are for the convenience of the parties and in no way alter, modify, amend, limit or restrict the contractual obligations of the parties.

13. Governing Law. This Warrant will be governed by and construed in accordance with the internal laws of the State of Delaware (without reference to the conflicts of law provisions thereof).

14. Facsimile Signatures. This Warrant may be executed by facsimile signature.

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EXECUTED as of the Date of Issuance indicated above.

Idera Pharmaceuticals, Inc.

By: \_\_\_\_\_

Title: \_\_\_\_\_

PURCHASE FORM

To: \_\_\_\_\_

Dated: \_\_\_\_\_

The undersigned, pursuant to the provisions set forth in the attached Warrant (No. \_\_\_\_), hereby elects to purchase (*check applicable box*):

- \_\_\_\_\_ shares of the Common Stock of Idera Pharmaceuticals, Inc. covered by such Warrant; or
- the maximum number of shares of Common Stock covered by such Warrant pursuant to the cashless exercise procedure set forth in subsection 1(b).

The undersigned herewith makes payment of the full purchase price for such shares at the price per share provided for in such Warrant. Such payment takes the form of (*check applicable box or boxes*):

- \$ \_\_\_\_\_ in lawful money of the United States; and/or
- the cancellation of such portion of the attached Warrant as is exercisable for a total of \_\_\_\_\_ Warrant Shares (using a Fair Market Value of \$ \_\_\_\_\_ per share for purposes of this calculation); and/or
- the cancellation of such number of Warrant Shares as is necessary, in accordance with the formula set forth in subsection 1(b), to exercise this Warrant with respect to the maximum number of Warrant Shares purchasable pursuant to the cashless exercise procedure set forth in subsection 1(b).

Signature: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

ASSIGNMENT FORM

FOR VALUE RECEIVED, \_\_\_\_\_ hereby sells, assigns and transfers all of the rights of the undersigned under the attached Warrant (No. \_\_\_\_ ) with respect to the number of shares of Common Stock of Idera Pharmaceuticals, Inc. covered thereby set forth below, unto:

<u>Name of Assignee</u>	<u>Address</u>	<u>No. of Shares</u>
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Dated: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature Guaranteed:

Dated: \_\_\_\_\_

By: \_\_\_\_\_

The signature should be guaranteed by an eligible guarantor institution (banks, stockbrokers, savings and loan associations and credit unions with membership in an approved signature guarantee medallion program) pursuant to Rule 17Ad-15 under the Securities Exchange Act of 1934.

**IDERA PHARMACEUTICALS, INC.**

**AMENDMENT NO. 1 TO CONVERTIBLE PREFERRED STOCK AND WARRANT PURCHASE AGREEMENT**

This Amendment No. 1 to Convertible Preferred Stock and Warrant Purchase Agreement (this "*Agreement*") is made as of November 9, 2012, by and between Idera Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and Pillar Pharmaceuticals I, L.P. (the "*Purchaser*").

WHEREAS, the Company and Purchaser entered into that certain Convertible Preferred Stock and Warrant Purchase Agreement, dated as of November 4, 2011 (the "*Purchase Agreement*"), by and between the Company and Purchaser;

WHEREAS, the Company and the Purchaser desire to amend certain sections of the Purchase Agreement, as set forth below;

WHEREAS, pursuant to Section 7.4 of the Purchase Agreement, any amendment of the Purchase Agreement requires the written consent of the Company and the Purchasers holding a majority of the shares of Series D Preferred Stock (as defined in the Purchase Agreement) then outstanding;

NOW, THEREFORE, in consideration of the foregoing, and for other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and the Purchaser hereby agree as follows:

1. Section 5.2 of the Purchase Agreement is hereby terminated and of no further force and effect.
2. The Company hereby agrees that the purchase by certain affiliates of the Purchaser of securities of the Company pursuant to that certain Convertible Preferred Stock and Warrant Purchase Agreement, dated November 9, 2012, among the Company and the Purchasers named therein shall not be in violation of Section 5.7 of the Purchase Agreement.
3. Section 5.8 of the Purchase Agreement is hereby amended by deleting such Section in its entirety from the Purchase Agreement and inserting the following in lieu thereof:

"5.8 Voting Rights.

(A) Each Purchaser hereby agrees that, to the extent that and for so long as the total number of shares of Common Stock beneficially owned by the Purchaser and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the Purchaser for purposes of Section 13(d) of the Exchange Act exceeds 19.99% (prior to the date that the stockholders of the Company approve the Nasdaq Proposal (as defined by and in accordance with Section 5.11(B) of that certain Convertible Preferred Stock and Warrant Purchase Agreement, dated November 9, 2012, among the Company and the Purchasers named therein (the "SERIES E PURCHASE AGREEMENT")) or 25%



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(effective upon the date that the stockholders of the Company approve the Nasdaq Proposal), in any election of directors and in any other vote to be taken by the stockholders of the Company (whether taken at an annual or special meeting of stockholders or by written action), it and its affiliates will vote any Excess Shares (as defined below) held in the same manner as and in the same proportion to the votes cast by the other holders of the Company's Common Stock or other voting securities.

(B) Each Purchaser hereby constitutes and appoints as the proxies of the party and hereby grants a power of attorney to the officers of the Company, and each of them, with full power of substitution, with respect to clause (A) above, and hereby authorizes each of them to represent and to vote, if and only if the Purchaser (i) fails to vote or (ii) attempts to vote (whether by proxy, in person or by written consent), in a manner which is inconsistent with the terms of clause (A), all of such Purchaser's Excess Shares in accordance with the terms of clause (A). Each of the proxy and power of attorney granted pursuant to the immediately preceding sentence is given in consideration of the agreements and covenants of the Company and the parties in connection with the transactions contemplated by this Agreement and, as such, each is coupled with an interest and shall be irrevocable unless and until this Agreement terminates or expires. Each Purchaser hereby revokes any and all previous proxies or powers of attorney with respect to the Excess Shares and shall not hereafter, unless and until this Agreement terminates or expires, purport to grant any other proxy or power of attorney with respect to any of such Excess Shares, deposit any of such Excess Shares into a voting trust or enter into any agreement (other than this Agreement), arrangement or understanding with any person, directly or indirectly, to vote, grant any proxy or give instructions with respect to the voting of any of such Excess Shares, in each case, with respect to clause (A) above.

(C) Each Purchaser agrees to refrain from exercising (and hereby affirmatively waives) any dissenters' rights or rights of appraisal under applicable law at any time with respect to any Sale of the Corporation (as defined in the Corporation's Certificate of Designations, Preferences and Rights of Series E Preferred Stock) to the extent such Sale of the Corporation has been approved by the Company's Board of Directors.

(D) For purposes of this Section 5.8, "Excess Shares" means for any Purchaser the number of shares of voting stock held by the Purchaser and its affiliates equal to (i) the total number of shares of Common Stock held by the Purchaser and its affiliates (including Conversion Shares and shares of Common Stock issuable upon conversion of other series of Preferred Stock held by the Purchaser and its affiliates), less (ii) 19.99% (prior to the date that the stockholders of the Company approve the Nasdaq Proposal) or 25% (effective upon the date that the stockholders of the Company approve the Nasdaq Proposal) of the total number of shares of Common Stock then outstanding (including all Conversion Shares and all other shares of Common Stock then issuable upon conversion of other series of Preferred Stock then outstanding)."

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4. Section 6.1 of the Purchase Agreement is hereby amended by deleting such Section in its entirety from the Purchase Agreement and inserting the following in lieu thereof:

“6.1 Restrictions on Transferability.

(A) Subject to Section 6.1(B), the Securities shall not be sold, transferred, assigned or hypothecated unless (i) there is an effective registration statement under the Securities Act covering such Securities, (ii) the sale is made in accordance with Rule 144 under the Securities Act, or (iii) the Company receives an opinion of counsel for the holder of the Securities reasonably satisfactory to the Company stating that such sale, transfer, assignment or hypothecation is exempt from the registration requirements of the Securities Act, and each such case upon all other conditions specified in this Section 6.1. Notwithstanding the provisions of the preceding sentence, no such registration statement or opinion of counsel shall be required for any transfer of any Securities by a Purchaser that is a partnership, a limited liability company or a corporation to (a) a partner of such partnership, a member of such limited liability company or a stockholder of such corporation, (b) an entity that controls, or is controlled by, or is under common control with such partnership, limited liability company or corporation, or (c) the estate of any such partner, member or stockholder (collectively, clauses (a) through (c) the “PERMITTED TRANSFEREES”); provided, that in each of the foregoing cases the proposed transferee of the Securities held by the Purchaser agrees in writing to take and hold such Securities subject to the provisions and upon the conditions specified in this Section 6.

(B) Notwithstanding anything to the contrary set forth in this Agreement, without the prior written consent of the Company, the Purchaser may not sell or transfer any Securities to a person, entity or group (within the meaning of Section 13(d) of the Exchange Act) in one or more transactions if such sale or transfer would, in the aggregate, result in the transfer to such person, entity or group Securities representing, or exercisable for stock of the Company representing, more than 5% of the then outstanding combined voting power of the outstanding securities of the Company (other than a sale or transfer to a Permitted Transferee who agrees in writing to be bound by such restrictions or in connection with a resale of such Securities in connection with an underwritten public offering that has been approved by the Board).

(C) Any transfer not made in compliance with the requirements of this Section 6.1 shall be null and void ab initio, shall not be recorded on the books of the Company or its transfer agent and shall not be recognized by the Company. Each Purchaser acknowledges and agrees that any breach of this Section 6.1 by a Purchaser would result in substantial harm to the Company and its stockholders for which monetary damages alone could not adequately compensate. Therefore, each Purchaser unconditionally and irrevocably agrees that the Company shall be entitled to seek protective orders, injunctive relief and other remedies available at law or in equity (including without limitation, seeking specific performance or the rescission of purchases, sales and other transfers of Securities not made in compliance with this Section 6.1.”

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5. Section 7.6 of the Purchase Agreement is hereby amended by deleting the phrase “Commonwealth of Massachusetts” and inserting the phrase “State of Delaware” in lieu thereof.

6. The Purchase Agreement, as amended by this Agreement, together with any other writings referred to in the Purchase Agreement or delivered pursuant thereto which form a part thereof, contain the entire agreement among the parties with respect to the subject matter thereof and amend, restate and supersede all prior and contemporaneous arrangements or understandings with respect thereto.

7. Upon the effectiveness of this Agreement, on and after the date hereof, each reference in the Purchase Agreement to “this Agreement,” “hereunder,” “hereof,” “herein” or words of like import shall mean and be a reference to the Purchase Agreement, as amended hereby. Except as specifically amended above, the Purchase Agreement shall remain in full force and effect and are hereby ratified and confirmed.

8. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the State of Delaware, without regard to conflict of laws principles that would result in the application of any law other than the law of the State of Delaware.

9. This Agreement may be executed in any number of counterparts, and each such counterpart shall be deemed to be an original instrument, but all such counterparts together shall constitute but one agreement.

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**IN WITNESS WHEREOF**, this Amendment No. 1 to Convertible Preferred Stock and Warrant Purchase Agreement has been executed by the parties hereto as of the day and year first above written.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal

Title: Chairman, Chief Executive Officer and President

**Amendment No. 1 to Convertible Preferred Stock and Warrant Purchase Agreement**

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**IN WITNESS WHEREOF**, this Amendment No. 1 to Convertible Preferred Stock and Warrant Purchase Agreement has been executed by the parties hereto as of the day and year first above written.

PURCHASER:

PILLAR PHARMACEUTICALS I, L.P.

By: /s/ Youssef El Zein

Name: Youssef El Zein

Title: Director

**Amendment No. 1 to Convertible Preferred Stock and Warrant Purchase Agreement**

**IDERA PHARMACEUTICALS, INC.**

**AMENDMENT NO. 1 TO COMMON STOCK PURCHASE WARRANT**

This Amendment No. 1 to Common Stock Purchase Warrant (this "**Agreement**") is made as of November 9, 2012, by and between Idera Pharmaceuticals, Inc., a Delaware corporation (the "**Company**"), and Pillar Pharmaceuticals I, L.P. (the "**Registered Holder**").

WHEREAS, the Company issued and sold to the Registered Holder that certain Common Stock Purchase Warrant, dated as of November 4, 2011 (the "**Warrant**") pursuant to that certain Convertible Preferred Stock and Warrant Purchase Agreement, dated November 4, 2011, among the Company and the Purchasers named therein;

WHEREAS, the Company and the Registered Holder desire to amend certain sections of the Warrant, as set forth below;

WHEREAS, pursuant to Section 11 of the Warrant, any amendment of the Warrant requires the written consent signed by the Company and the Registered Holder;

NOW, THEREFORE, in consideration of the foregoing, and for other valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and the Registered Holder hereby agree as follows:

1. Section 1(e) of the Warrant is hereby amended by deleting subsection (e) thereof in its entirety and inserting the following new subsection (e) in lieu thereof:

"(e) Exercise Limitation. Notwithstanding anything to the contrary contained herein, the Company shall not effect any exercise of this Warrant and the Registered Holder shall not be entitled to exercise this Warrant for a number of Warrant Shares in excess of that number of Warrant Shares which, upon giving effect to such exercise, would cause (i) the aggregate number of shares of Common Stock beneficially owned by the Registered Holder and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the Registered Holder's for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), to exceed 19.99% of the total number of issued and outstanding shares of Common Stock of the Company following such exercise, or (ii) the combined voting power of the securities of the Company beneficially owned by the Registered Holder and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the holder's for purposes of Section 13(d) of the Exchange Act to exceed 19.99% of the combined voting power of all of the securities of the Company then outstanding following such exercise, unless, in either case, the stockholders of the Company approve the Nasdaq Proposal (as defined by and in accordance with Section 5.11(B) of that certain Convertible Preferred Stock and Warrant, dated November 9, 2012, among the Company and the Purchasers named therein), in which case, the 19.99% limitation under clause (i) and clause (ii) of this Section 1(e) shall be increased, with respect to the Registered Holder, to 35% for purposes of both clause (i) and clause (ii) of this Section 1(e). For purposes of this Section 1(e), the aggregate number of shares of Common Stock or voting securities beneficially owned by the Registered Holder and its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the Registered Holder's for purposes of Section 13(d) of the Exchange Act shall include the shares of Common Stock issuable upon the exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining unexercised and non-cancelled portion of this Warrant by the Registered Holder and (ii) exercise or conversion of the unexercised, non-converted or non-cancelled portion of any other securities of the Company that do not have voting power (including without limitation any securities of the Company which would entitle the holder thereof to acquire at any time Common Stock, including without limitation any debt, preferred stock, right, option, warrant or other instrument that is at any time convertible into or exercisable or exchangeable for, or otherwise entitles the holder thereof to receive, Common Stock), subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Registered Holder or any of its affiliates and other persons whose beneficial ownership of Common Stock would be aggregated with the Registered Holder's for purposes of Section 13(d) of the Exchange Act."

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2. Section 13 of the Warrant is hereby amended by deleting the phrase “Commonwealth of Massachusetts” and inserting the phrase “State of Delaware” in lieu thereof.

3. The Warrant, as amended by this Agreement, together with any other writings referred to in the Warrant or delivered pursuant thereto which form a part thereof, contain the entire agreement among the parties with respect to the subject matter thereof and amend, restate and supersede all prior and contemporaneous arrangements or understandings with respect thereto.

4. Upon the effectiveness of this Agreement, on and after the date hereof, each reference in the Warrant to “this Agreement,” “hereunder,” “hereof,” “herein” or words of like import shall mean and be a reference to the Warrant, as amended hereby. Except as specifically amended above, the Warrant shall remain in full force and effect and are hereby ratified and confirmed.

5. This Agreement shall be governed by and construed in accordance with the General Corporation Law of the State of Delaware as to matters within the scope thereof, and as to all other matters shall be governed by and construed in accordance with the internal laws of the State of Delaware, without regard to conflict of laws principles that would result in the application of any law other than the law of the State of Delaware.

6. This Agreement may be executed in any number of counterparts, and each such counterpart shall be deemed to be an original instrument, but all such counterparts together shall constitute but one agreement.

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**IN WITNESS WHEREOF**, this Amendment No. 1 to Common Stock Purchase Warrant has been executed by the parties hereto as of the day and year first above written.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal

Title: Chairman, Chief Executive Officer and President

**Amendment No. 1 to Common Stock Purchase Warrant**



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**IN WITNESS WHEREOF**, this Amendment No. 1 to Common Stock Purchase Warrant has been executed by the parties hereto as of the day and year first above written.

REGISTERED HOLDER:

PILLAR PHARMACEUTICALS I, L.P.

By: /s/ Youssef El Zein

Name: Youssef El Zein

Title: Director

**Amendment No. 1 to Common Stock Purchase Warrant**