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**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 4, 2011

**Idera Pharmaceuticals, Inc.**

(Exact Name of Registrant as Specified in Charter)

Delaware	001-31918	04-3072298
(State or Other Jurisdiction of Incorporation)	(Commission File Number)	(IRS Employer Identification No.)
167 Sidney Street Cambridge, Massachusetts		02139
(Address of principal executive offices)		(Zip Code)

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

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(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 4, 2011, Idera Pharmaceuticals, Inc. (“Idera” or “the Company”) entered into a Convertible Preferred Stock and Warrant Purchase Agreement (the “Purchase Agreement”) with Pillar Pharmaceuticals I.L.P. (“Pillar” or the “Purchaser”), an investment partnership. Youssef El Zein, a member of the Company’s board of directors, is a director and controlling stockholder of the general partner of Pillar. Pursuant to the Purchase Agreement, the Company issued and sold to the Purchaser, for an aggregate purchase price of \$9,500,000, 1,124,260 shares of its Series D convertible preferred stock, par value \$0.01 per share (“Series D Preferred Stock”), convertible into 5,621,300 shares of common stock, \$0.001 par value per share, of the Company (“Common Stock”), and warrants (the “Warrants”) to purchase 2,810,650 shares of Common Stock. Each share of Series D Preferred Stock is convertible into five shares of Common Stock at a conversion price of \$1.6275 per share.

Under the terms of the Purchase Agreement, the Company granted the Purchaser participation rights in future financings. Also under the terms of the Purchase Agreement, the Purchaser agreed that for so long as the Purchaser and its affiliates beneficially own more than 15% of the outstanding Common Stock, the Purchaser and its affiliates will vote any shares held by them in excess of the number of shares equal to 15% of the outstanding Common Stock (including the shares of Common Stock issuable upon conversion of the Series D Preferred Stock) 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 Purchaser) vote on such matter. The Purchaser has also agreed to be subject to a standstill provision that continues for so long as the Purchaser and its affiliates beneficially own more than 15% of the outstanding Common Stock.

The Warrants have an exercise price of \$1.6275 per share (subject to adjustment therein) and may be exercised at the Purchaser’s option at any time on or before November 4, 2016. The exercise price of the Warrants is subject to adjustment in the event that the Company issues shares of Common Stock without consideration or for a price per share that is lower than \$1.46 (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock), provided that the exercise price of the Warrants may not be reduced below \$1.46. The Warrants provide that the Company shall 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 (i) the number of shares of Common Stock outstanding or (ii) the combined voting power of the securities of the Company outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of the Warrant. After November 4, 2013, 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 \$6.51 (subject to adjustment for stock splits, stock dividends, combinations, recapitalizations, reclassifications, and similar transactions affecting the Common Stock).

The Purchase Agreement is attached hereto as Exhibit 10.1 and is incorporated herein by reference. The form of Warrant is attached hereto as Exhibit 10.3 and is incorporated herein by reference. The foregoing descriptions of the 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*

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In connection with the Purchase Agreement, the Company entered into a Registration Rights Agreement, dated November 4, 2011, with the Purchaser (the "Registration Rights Agreement"). Pursuant to the Registration Rights Agreement, Idera 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 D 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 aggregate purchase price paid to Idera by the Purchaser for the Series D Preferred Stock. Idera is required to maintain the registration statement's effectiveness until no unregistered shares of Common Stock issued or issuable upon conversion of the Series D 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 Rights Agreement*

On November 4, 2011, the Company also entered into Amendment No. 4 ("Amendment No. 4") to the Rights Agreement, dated as of December 10, 2001, as amended (the "Rights Agreement"), between the Company and Mellon Investor Services LLC, as Rights Agent.

Amendment No. 4 modifies the definition of Exempted Person under the Rights Agreement to provide that Pillar together with its affiliates and associates will be an Exempted Person under the Rights Agreement until such time as they beneficially own less than 14% of the Common Stock then outstanding, in which event, Pillar immediately shall cease to be an Exempted Person.

Amendment No. 4 is attached hereto as Exhibit 4.1 and is incorporated herein by reference. The foregoing description of Amendment No. 4 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 4, 2011, the Company issued and sold to Pillar, for an aggregate purchase price of \$9,500,000, 1,124,260 shares of its Series D Preferred Stock, convertible into 5,621,300 shares of Common Stock, and Warrants to purchase 2,810,650 shares of Common Stock at a per share exercise price of \$1.6275 (subject to adjustment therein). Each share of Series D Preferred Stock is convertible into five shares of Common Stock at a per share conversion price of \$1.6275 (subject to adjustment for stock dividends, stock splits and other events, as provided in the Certificate of Designations).

The shares of Series D Preferred Stock and Warrants offered and sold pursuant to the Purchase Agreement were offered and sold to Pillar without registration under the Securities Act or the securities laws of certain states, in reliance on the exemptions provided by Section 4(2) of the Securities Act and Regulation D promulgated thereunder. Pillar was an "accredited investor" (as defined in Regulation D promulgated under the Securities Act).

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

On November 4, 2011, the Company entered into Amendment No. 4 to the Rights Agreement. The disclosures in Item 1.01 of this Current Report on Form 8-K relating to Amendment No. 4 are incorporated herein by reference.

On November 4, 2011, the Company filed with the Secretary of State of the State of Delaware a Certificate of Designations, Preferences and Rights (the "Certificate of Designations") setting forth the rights and preferences of the Series D Preferred Stock. The disclosures in Item 5.03 of this Current Report on Form 8-K are incorporated herein by reference.

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

The Company's Certificate of Incorporation permits its board of directors 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 4, 2011 the board of directors of the Company designated 1,124,260 shares as Series D Preferred Stock, having the rights and preferences set forth in the Certificate of Designations as summarized below.

- *Dividends* — The holders of the Series D Preferred Stock are entitled to receive dividends payable quarterly in arrears at the rate of 7% per annum. Such dividends shall be paid in cash through December 31, 2014 and thereafter in cash or with shares of Common Stock, as determined by the Company in its sole discretion, except that the Company may not pay any dividends to a holder of Series D Preferred Stock in shares of Common Stock to the extent the issuance of such shares would result in the holder of Series D Preferred Stock and its affiliates beneficially owning more than 19.99% of (i) the Common Stock outstanding or (ii) the combined voting power of the securities of the Company outstanding immediately after giving effect to the issuance of such shares of Common Stock.
- *Liquidation and Other Events* — In the event of a liquidation, dissolution or winding up of the Company, whether voluntary or involuntary, after payment or provision for payment of debts and other liabilities of the Company, the holders of the Series D Preferred Stock then outstanding shall 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 D Preferred Stock (\$8.1375 per share) plus all accrued or declared but unpaid dividends thereon and (b) the amount that the holder of Series D Preferred Stock would be entitled to receive with respect to each share of Series D Preferred Stock pursuant to such liquidation if all of the outstanding shares of Series D 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 junior securities to the holders of any junior securities including, without limitation, Common Stock and Series A Preferred Stock of the Company.

The holders of shares of Series D Preferred Stock then outstanding shall be entitled to require the Company to purchase such shares of Series D Preferred Stock at a price equal to the original Series D Preferred Stock purchase price per share plus all accrued or declared but unpaid dividends thereon upon the occurrence of specified fundamental changes such as mergers, consolidations, business combinations, stock purchases or similar transactions resulting in a

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person or group unaffiliated with any holder of Series D Preferred Stock owning 66.67% or more of the outstanding voting securities of the Company or successor entity.

- *Conversion* — Each share of Series D 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 D Preferred Stock original issue price by the Series D Preferred Stock conversion price in effect at the time of conversion. The Series D Preferred Stock conversion price shall initially be equal to \$1.6275 and the Series D Preferred Stock issue price shall initially be equal to the \$8.1375 original purchase price of the Series D Preferred Stock. Accordingly, each share of Series D Preferred Stock is initially convertible at the option of the holder into five 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 Common Stock outstanding.

The initial Series D Preferred Stock conversion price, and the rate at which shares of Series D Preferred Stock may be converted into shares of Common Stock, may be subject to adjustment for stock dividends, stock splits and other events, as provided in the Certificate of Designations. In addition, in the event that the Company shall issue at any time shares of Common Stock without consideration or for a consideration per share that is less than \$1.46 (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock), holders of Series D Preferred Stock will have weighted average anti-dilution protection, except for certain carve outs, with respect to the conversion price of the Series D Preferred Stock, provided that the Series D Preferred Stock conversion price may not be reduced to a price that is less than \$1.46.

- *Redemption* — After November 4, 2013 and following notice the Company may redeem, for cash payment equal to the original Series D Preferred Stock issue price per share plus any accrued or declared but unpaid dividends thereon, all or a portion of the Series D 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 200% of the Series D Preferred Stock conversion price.

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.

**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 10, 2011

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

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
3.1	Certificate of Designations, Preferences and Rights of Series D Preferred Stock of the Company
4.1	Amendment No. 4 to Rights Agreement, dated as of November 4, 2011, by and between the Company and Mellon Investor Services LLC, as amended
10.1	Convertible Preferred Stock and Warrant Purchase Agreement, dated November 4, 2011, among the Company and the Purchaser named therein
10.2	Registration Rights Agreement, November 4, 2011, among the Company and the Purchaser named therein
10.3	Form of Warrant issued to Purchaser pursuant to Convertible Preferred Stock and Warrant Purchase Agreement, dated November 4, 2011, among the Company and the Purchaser named therein

**CERTIFICATE OF DESIGNATIONS, PREFERENCES AND RIGHTS**  
**OF**  
**SERIES D 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 following resolution was adopted by the Board at a meeting duly called and held on November 4, 2011, 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 D Convertible Preferred Stock” (the “**Series D Preferred Stock**”) and shall consist of 1,124,260 shares. The shares of Series D 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 D Preferred Stock shall be entitled to receive, with respect to each share of Series D Preferred Stock then outstanding and held by such holder of Series D Preferred Stock, dividends, commencing from the date of issuance of such share of Series D Preferred Stock, at the rate of seven percent (7%) per annum (on the basis of a 360 day year) of the Series D Original Issue Price (as defined below) (the “**Series D Preferred Dividends**”). The Series D Preferred Dividends shall be cumulative, whether or not earned or declared, shall be paid quarterly in arrears on the last day of December, March, June and September (a “**Quarterly Dividend Payment Date**”) in each year that Series D Preferred Stock is outstanding, with the first Quarterly Dividend Payment Date being December 31, 2011, and shall be prorated for periods shorter than one quarter. The rights of a holder of Series D Preferred Stock as Series D Preferred Dividends shall rank senior to the rights of the Corporation’s Series A Convertible Preferred Stock as to dividends. The Series D Preferred Dividends shall be paid to each holder of Series D Preferred Stock in cash out of legally available funds or, at the Corporation’s election, through the issuance of such number of shares of the Corporation’s Common Stock, par value \$0.001 per share (the “**Common Stock**”) (rounded down to the nearest whole share with any fractional shares being issued in cash in an amount equal to the Market Price (as defined in Section 4.2 below) of such fractional share of Common Stock) determined by dividing the amount of the total accrued but unpaid dividends

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then outstanding on such holder's shares of Series D Preferred Stock by the Market Price then in effect (which for this purpose may not be less than \$1.46 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock); provided, however, that (i) the Corporation may not pay such dividends in shares of Common Stock on or prior to December 31, 2014, (ii) the Corporation may not issue shares of Common Stock in excess of that number of shares of Common Stock which, upon giving effect to such issuance, would cause (a) the aggregate number of shares of Common Stock beneficially owned by a holder of Series D 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 following such issuance, or (b) the combined voting power of the securities of the Corporation beneficially owned by a holder of Series D 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 issuance, unless, in either case, the Corporation obtains the requisite stockholder approval under NASDAQ Marketplace Rule 5635(b) (the "**Issuance Limitation**"), in which case, the Issuance Limitation under this clause (ii) shall no longer apply to the payment of dividends hereunder and (iii) if clause (ii) shall in fact limit the issuance of any shares of Common Stock in payment of a given dividend, then the Corporation's election to pay such dividend in shares of Common Stock shall be ineffective to the extent of such limitation and such dividend shall instead thereupon be paid in cash by the Corporation out of legally available funds. Any election by the Corporation to pay Series D Preferred Dividends in cash or shares of Common Stock shall be made uniformly with respect to all outstanding shares of Series D Preferred Stock for a given dividend period. For purposes of this Section 1.1 the aggregate number of shares of Common Stock or voting securities beneficially owned by a holder of Series D 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, shall include the shares of Common Stock to be issued as part of such dividend payment, 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.

1.2 Notwithstanding the foregoing, if any Series D Preferred Dividend is not paid by the Corporation within five trading days following a Quarterly Dividend Payment Date, such Series D Preferred Dividend shall continue to accrue and the Corporation shall be obligated to pay the holders a late fee with respect to such Series D 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 D 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 D Preferred Dividend (i) that the Corporation is not permitted to pay under Delaware law or (ii) to be paid in cash that is not paid at a time when the Corporation has less than \$10 million of cash and cash equivalents as of the applicable Quarterly Dividend Payment Date as certified in writing by the Corporation to the holders.

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 Common Stock payable in shares of Common Stock and dividends on the Series A Convertible Preferred Stock in accordance with Section 2(a) of the Certificate of Designations for the Series A Convertible Preferred Stock) unless the holders of the Series D Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Series D 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 D 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 D 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 D 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 D 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 D 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 D 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 D Preferred Stock dividend.

1.4 The “**Series D Original Issue Price**” shall mean \$8.1375 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 D Preferred Stock.

## 2. Liquidation, Dissolution or Winding Up.

2.1 Payments to Holders of Series D Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, the holders of shares of Series D 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 or any other class of capital stock of the Corporation ranking junior to the Series D Preferred Stock as to liquidation, by reason of their ownership thereof, an amount per share equal to the greater of (i) the Series D Original Issue Price, plus any dividends accrued or declared but unpaid thereon, or (ii) such amount per share as would have been payable with respect to such share had all shares of Series D Preferred Stock been converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution or winding up. 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 D Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1, the holders of shares of Series D 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. 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 D 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.

3. Voting. 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 D Preferred Stock shall be entitled to cast a number of votes equal to the number of whole shares of Common Stock into which the shares of Series D 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 D Preferred Stock shall vote together with the holders of Common Stock as a single class.

#### 4. Optional Conversion.

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

##### 4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of Series D 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 D Original Issue Price by the Series D Conversion Price (as defined below) in effect at the time of conversion. The “**Series D Conversion Price**” shall initially be equal to \$1.6275. Such initial Series D Conversion Price, and the rate at which shares of Series D 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 D Preferred Stock and such holder shall not be entitled to convert its shares of Series D 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 D 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 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 D Preferred Stock) following such conversion, or (b) the combined voting power of the securities of the Corporation beneficially owned by a holder of Series D 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 Corporation obtains the requisite stockholder approval under NASDAQ Marketplace Rule 5635(b) unless the Corporation obtains the requisite stockholder approval under NASDAQ Marketplace Rule 5635(b), in which case, this limitation under this Section 4.1.1 shall no longer apply to the holder. For purposes of this Section 4.1.1, 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 Exchange Act shall include the shares of Common Stock issuable upon the conversion of the Series D 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.

4.1.2 Termination of Conversion Rights. In the event of a notice of redemption of any shares of Series D Preferred Stock pursuant to Section 5 or 6, 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, 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 D Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Series D 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 D 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 Corporation's common stock ending on the trading day immediately prior to the date of determination and (b) the closing price of the Corporation's 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 of Directors of the Corporation 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). Upon request of a holder of Series D Preferred Stock, the Board of Directors (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 D Preferred Stock to voluntarily convert shares of Series D Preferred Stock into shares of Common Stock, such holder shall surrender the certificate or certificates for such shares of Series D 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 D 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 D 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 D 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 D 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) pay all accrued or declared but unpaid dividends on the shares of Series D Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when the Series D 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 D 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 D 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 D 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 D Conversion Price below the then par value of the shares of Common Stock issuable upon conversion of the Series D 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 D Conversion Price.

4.3.3 Effect of Conversion. All shares of Series D 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 D 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 D Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Series D Conversion Price shall be made for any declared but unpaid dividends on the Series D 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 D 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 D 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 Adjustments to Series D Conversion Price for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

- (a) “**Option**” shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.
- (b) “**Series D Original Issue Date**” shall mean the date on which the first share of Series D Preferred Stock was issued.
- (c) “**Convertible Securities**” shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.
- (d) “**Additional Shares of Common Stock**” shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series D Original Issue Date, other than (1) the following shares of Common Stock and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, “**Exempted Securities**”):
  - (i) shares of Common Stock, Options or Convertible Securities issued as a dividend or distribution on Series D Preferred Stock;
  - (ii) shares of Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 4.5, 4.6, 4.7 or 4.8;
  - (iii) shares of Common Stock or Options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors of the Corporation;

- (iv) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;
- (v) shares of Common Stock, Options or Convertible Securities issued as payments of interest on notes or other indebtedness of the Company;
- (vi) shares of Common Stock, Options or Convertible Securities issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors of the Corporation;
- (vii) shares of Common Stock, Options or Convertible Securities issued to suppliers or third party service providers in connection with the provision of goods or services, including placement agents, pursuant to transactions approved by the Board of Directors of the Corporation;
- (viii) shares of Common Stock, Options or Convertible Securities issued pursuant to the acquisition of another corporation by the Corporation by merger, purchase of substantially all of the assets or other reorganization or to a joint venture agreement, provided, that such issuances are approved by the Board of Directors of the Corporation; or
- (ix) shares of Common Stock, Options or Convertible Securities issued in connection with sponsored research, collaboration, technology license, development, marketing or other similar agreements or strategic partnerships approved by the Board of Directors of the Corporation.

4.4.2 No Adjustment of Series D Conversion Price. No adjustment in the Series D Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the Requisite Holders agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. The term "Requisite Holders"



shall mean the holders of at least a majority of the then outstanding shares of Series D Preferred Stock.

4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series D Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the Series D Conversion Price pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the Series D Conversion Price computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Series D Conversion Price as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the Series D Conversion Price to an amount which exceeds the lower of (i) the Series D Conversion Price in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Series D Conversion Price that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to the Series D Conversion Price pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than the Series D Conversion Price then in effect, or because such Option or Convertible

Security was issued before the Series D Original Issue Date), are revised after the Series D Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a)) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Series D Conversion Price pursuant to the terms of Subsection 4.4.4, the Series D Conversion Price shall be readjusted to such Series D Conversion Price as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the Series D Conversion Price provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the Series D Conversion Price that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the Series D Conversion Price that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Series D Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time after the Series D Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than \$1.46 (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock), then the Series D Conversion Price shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in

accordance with the formula below; provided, however that in no event shall the Series D Conversion Price hereunder be reduced under this Section 4.4.4 to a price that is less than \$1.46 (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock):

$$CP2 = CP1 * (A + B) \div (A + C).$$

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

- (a) “CP2” shall mean the Series D Conversion Price in effect immediately after such issue of Additional Shares of Common Stock
- (b) “CP1” shall mean the Series D Conversion Price in effect immediately prior to such issue of Additional Shares of Common Stock;
- (c) “A” shall mean the number of shares of Common Stock outstanding immediately prior to such issue of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issue or upon conversion or exchange of Convertible Securities (including the Series D Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);
- (d) “B” shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP1); and
- (e) “C” shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

- (a) Cash and Property: Such consideration shall:
  - (i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;
  - (ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors of the Corporation; and

- (iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors of the Corporation.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing

- (i) the total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by
- (ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Series D Conversion Price pursuant to the terms of Subsection 4.4.4, and such issuance dates occur within a period of no more than 90 days from the first such issuance to the final such issuance, then, upon the final such issuance, the Series D Conversion Price shall be readjusted to give effect to all such

issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series D Original Issue Date effect a subdivision of the outstanding Common Stock, the Series D 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 D Original Issue Date combine the outstanding shares of Common Stock, the Series D 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.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series D 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 event the Series D 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 D 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 D Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Series D 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 D 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 D Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series D 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 Section 1 do not apply to such dividend or distribution, then and in each such event the holders of Series D 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 D Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. If there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Series D Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Series D Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to 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 D 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 of Directors of the Corporation) 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 D 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 D 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 D Preferred Stock.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Series D 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 D 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 D 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 D 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 D 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 D Preferred Stock.

4.10 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 D 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 D 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 D 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 D 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.

5. Redemption by Corporation.

5.1 Redemption. Shares of Series D Preferred Stock may be redeemed by the Corporation out of funds lawfully available therefor at a price equal to the Series D Original Issue Price per share, plus all accrued or declared but unpaid dividends thereon (the "**Redemption Price**"), at any time after November 4, 2013, 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 200% of the Series D Conversion Price, provided that the Corporation provides written notice of such redemption to each holder of Series D Preferred Stock within 30 days of the end of such 30 consecutive trading day period (the "**Redemption Notice**"). The Corporation shall send the Redemption Notice to each holder of record of Series D Preferred Stock not less than 30 days prior to the date fixed by the Corporation for such redemption (the "**Redemption Date**"). The Redemption Notice shall state:

(a) the Redemption Date and the 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 D Preferred Stock to be redeemed.

5.2 Surrender of Certificates; Payment. On or before the Redemption Date, each holder of shares of Series D Preferred Stock, unless such holder has exercised his, her or its right to convert such shares as provided in Section 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 Redemption Notice, and thereupon the 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.

5.3 Rights Subsequent to Redemption. If the Redemption Notice shall have been duly given, and if on the Redemption Date the Redemption Price payable upon redemption of the shares of Series D Preferred Stock 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 D Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Series D Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive the Redemption Price without interest upon surrender of their certificate or certificates therefor.

#### 6. Fundamental Change Redemption.

6.1 Fundamental Change. Upon the occurrence of a Fundamental Change, each holder of shares of Series D Preferred Stock may, at its sole option, require the Corporation to purchase all or a portion of its shares of Series D Preferred Stock (the “**Fundamental Change Redemption**”) at a price equal to Redemption Price. A “Fundamental Change” shall mean any of the following events:

(a) any “person” or “group” (each term as defined in the Exchange Act) that is not an affiliate of any holder of shares of Series D Preferred Stock becoming the “beneficial owner” (as defined in the Exchange Act) of voting securities of the Corporation, representing 66 2/3% or more of the outstanding voting securities of the Corporation (treating all securities convertible or exchangeable into or exercisable for shares of Common Stock as having been fully converted, exchanged and exercised, without regard to any exercise, conversion or exchange limitations therein) other than in connection with a transaction described in clause (d) below;

(b) the recapitalization or reclassification of the Common Stock of the Corporation;



(c) a sale of all or substantially all of the assets of the Corporation's assets to a person that is not an affiliate of any holder of shares of Series D Preferred Stock; or

(d) a merger, consolidation, business combination or similar transaction the result of which a "person" or "group" (each as defined in the Exchange Act) that is not an affiliate of any holder of shares of Series D Preferred Stock owns voting securities representing 66 2/3% or more of the outstanding voting securities of the surviving entity upon completion of such transaction.

**6.2 Exercise of Fundamental Change Redemption Option.** The Company shall send a written notice (the "**Fundamental Change Notice**") to each holder of shares of Series D Preferred Stock of (i) the occurrence of a Fundamental Change described in Subsection 6.1(a) above, within 10 days of the Corporation's becoming aware of the occurrence of such Fundamental Change, and (ii) a Fundamental Change described in Subsection 6.1(b)-(d) above, in accordance with Section 4.10. The Fundamental Change Notice shall describe the Fundamental Change and state that each holder of shares of Series D Preferred Stock has the right to require a Fundamental Change Redemption. In order to require a Fundamental Change Redemption, a holder of Series D Preferred Stock must deliver written notice to the Corporation requesting the Fundamental Change Redemption within five days after the date of the Fundamental Change Notice and stating the number of shares of Series D Preferred Stock to be redeemed. Unless prohibited by Delaware law governing distributions to stockholders, the Corporation shall redeem the shares of Series D Preferred Stock requested to be redeemed at a price equal to the Redemption Price and on a date to be fixed by the Corporation which shall not be more than 30 days from the date of the last timely delivered Fundamental Change Redemption request. If, on the date of the Fundamental Change Redemption, Delaware law governing distributions to stockholders prevents the Corporation from redeeming all shares of Series D Preferred Stock to be redeemed, the Corporation shall ratably redeem the maximum number of shares that it may redeem consistent with such law, and shall redeem the remaining shares as soon as it may lawfully do so under such law.

**6.3 Redemption Notice.** Following receipt of a timely request for a Fundamental Change Redemption by a holder of Series D Preferred Stock, the Corporation shall send written notice of the mandatory redemption to the holder stating:

- (a) the date fixed for the Fundamental Redemption (the "**Fundamental Redemption Date**") and the 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 D Preferred Stock to be redeemed.

**6.4 Surrender of Certificates; Payment.** On or before the Fundamental Redemption Date, each holder of shares of Series D 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 Section 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 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 D Preferred Stock represented by a certificate are redeemed, a new certificate representing the unredeemed shares of Series D Preferred Stock shall promptly be issued to such holder.

6.5 Rights Subsequent to Redemption. If on the Fundamental Redemption Date the Redemption Price payable upon redemption of the shares of the Series D 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 D Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Series D Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Fundamental Redemption Date terminate, except only the right to the holders to receive the Redemption Price without interest upon surrender of their certificate or certificates therefor.

6.6 Fundamental Change and Dividends. Upon the occurrence of a Fundamental Change as described in Subsection 6.1(c)-(d), the Company's obligation to pay Series D Preferred Dividends shall terminate.

7. Redeemed or Otherwise Acquired Shares. Any shares of Series D Preferred Stock that are redeemed or otherwise acquired 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 D Preferred Stock following redemption.

8. Waiver. Any of the rights, powers, preferences and other terms of the Series D Preferred Stock set forth herein may be waived on behalf of all holders of Series D Preferred Stock by the affirmative written consent or vote of the Requisite Holders.

9. Notices. Any notice required or permitted to be given to a holder of shares of Series D 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 4<sup>th</sup> day of November, 2011.

By: /s/ Sudhir Agrawal  
Chief Executive Officer

**AMENDMENT NO. 4  
TO  
RIGHTS AGREEMENT**

This AMENDMENT NO. 4 TO RIGHTS AGREEMENT (the "Amendment") is entered into as of November 4, 2011, between Idera Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and Mellon Investor Services LLC, a New Jersey limited liability company, as Rights Agent (the "Rights Agent"). Capitalized terms not otherwise defined herein shall have the meanings given them in the Rights Agreement dated as of December 10, 2001, between the parties hereto.

RECITALS

WHEREAS, the Board has determined that it is in the best interest of the Company to amend the Rights Agreement to modify the definition of Exempted Person to exclude a certain stockholder of the Company from such definition in specified circumstances; and

WHEREAS, the Company has determined that the Rights Agreement be amended in accordance with Section 27 of the Rights Agreement, as set forth herein, and the Rights Agent is hereby directed to join in the amendment to the Rights Agreement as set forth herein.

AGREEMENT

NOW THEREFORE, the parties hereto, intending to be legally bound, hereby agree as follows:

1. Section 1(oo) of the Rights Agreement is hereby amended to read in its entirety as follows:

- (oo) "Exempted Person" shall mean Pillar Pharmaceuticals I, L.P., together with all of its Affiliates and Associates ("Pillar"), unless and until the earlier of such time as Pillar, directly or indirectly, becomes the Beneficial Owner of less than 14% of the Common Stock then outstanding, in which event, Pillar immediately shall cease to be an Exempted Person."
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2. Except as amended hereby, the Rights Agreement shall remain unchanged and shall remain in full force and effect.

3. This Amendment may be executed in any number of counterparts, each of which shall be an original, but all of which together shall constitute one instrument.

4. This Amendment shall be deemed to be a contract made under the laws of the State of Delaware and for all purposes shall be governed by and construed in accordance with the laws of Delaware applicable to contracts made and to be performed entirely within Delaware; provided, however, that all rights, duties and obligations of the Rights Agent shall be governed by and construed in accordance with the laws of the State of New York applicable to contracts made and to be performed entirely within such state.

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IN WITNESS WHEREOF, the parties have caused this Amendment to be executed by their respective duly authorized representatives as of the date first above written.

IDERA PHARMACEUTICALS, INC.

By: /s/ Sudhir Agrawal

Name: Sudhir Agrawal

Title: Chief Executive Officer

MELLON INVESTORS SERVICES LLC,  
as Rights Agent

By: /s/ John Boryczki

Name: John Boryczki

Title: Relationship Manager

**IDERA PHARMACEUTICALS, INC.  
CONVERTIBLE PREFERRED STOCK AND WARRANT PURCHASE AGREEMENT**

**November 4, 2011**

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 pursuant to the terms and conditions hereof of (i) up to 1,124,260 shares (the "SHARES") of its Series D Convertible Preferred Stock, par value \$0.01 per share (the "SERIES D PREFERRED STOCK"), and (ii) warrants to purchase up to 2,810,650 shares of common stock, par value \$0.001 per share (the "COMMON STOCK") in the form attached hereto as Exhibit B (the "WARRANTS"). The Series D Preferred Stock shall have the rights, privileges, preferences and restrictions set forth in the Certificate of Designations, Preferences and Rights of Series D 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 (as defined in Section 2.1 below) 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 \$8.1375 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 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 Delaware;

(D) the Company shall deliver to the Purchasers a Certificate of the Secretary of the Company attesting as to (i) the By-laws 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 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 on Exhibit A and Warrants to purchase the number of shares of Common Stock set forth opposite such Purchaser’s name on Exhibit A, 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 for the Shares and Warrants being purchased by such Purchaser. 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 Exhibit A 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 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.



3.2 Authorized Capital Stock. Immediately prior to Closing, the Company will have (i) authorized 70,000,000 shares of Common Stock, of which 27,634,389 shares of Common Stock were outstanding as of October 15, 2011, 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, and 1,124,260 shares have been designated Series D 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). 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.

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 Section 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 (the "PROSPECTUS"), 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.

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, 2011, 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) 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;

(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.

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, 2010;

(B) the Company's Quarterly Reports on Form 10-Q for the quarters ended March 31, 2011 and June 30, 2011;

(C) all other documents, if any, filed by the Company with the Commission since December 31, 2010 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, 2010 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, manufacturing and commercialization of its product candidates, working capital and general corporate purposes.

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.

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, 2011, 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. 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 Section 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.

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 Rodman and Renshaw 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.

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 Section 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, 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 (5) business days after the Closing, the Registration Statement Questionnaire attached hereto as part of Exhibit F, 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.

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.

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.

## 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 (4) 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 privately sell and issue securities of the Company (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 such Purchaser's Conversion Shares) as compared to (y) the total number of shares of Common Stock then outstanding (including all Conversion Shares) (such percentage being such Purchaser's "ADDITIONAL FINANCING PRO RATA AMOUNT"); provided, however, that if a Purchaser's Pro Rata Amount exceeds 19.99%, such Purchaser's Additional Financing Pro Rata Amount shall be 19.99%.

(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 numbers 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) privately sell and issue convertible debt securities or preferred stock of the Company that ranks senior to the Series D Preferred Stock (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:

(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 of Directors of the Company determines in good faith that the participation in the Senior Financing of 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 of Directors of the Company, 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 to which such Purchaser is entitled pursuant to Section 5.2(B) shall supersede any right to which such Purchaser would have otherwise been entitled pursuant to Section 5.2(A).

(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.

(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 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 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 Marketplace Rule 5635(b).

5.3 Expenses. The Company shall pay to Pillar Pharmaceuticals I, 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 \$100,000 and the balance of the expenses of Pillar and the other Purchasers shall be borne by Pillar and the other Purchasers.

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 American Stock Exchange, the New York Stock Exchange, the Nasdaq Global Market, the Nasdaq Capital 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.

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 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) 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 the 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 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 or 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 of Directors 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; or

(E) 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 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 15%, 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) For purposes of this Section 5.8, "Excess Shares" means for any Purchaser the number of shares of Common Stock held by the Purchaser and its affiliates (including the Purchaser's or such affiliates' Conversion Shares) equal to (i) the total number of shares of Common Stock held by the Purchaser and its affiliates (including the Purchaser's or such affiliates' Conversion Shares), less (ii) 15% of the total number of shares of Common Stock then outstanding (including all Conversion Shares).

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 D 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 D 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 (3) business days of receipt of all documents and information needed to effect such conversion and issue such certificates.

## ARTICLE 6

### RESTRICTIONS ON TRANSFERABILITY OF SECURITIES

6.1 Restrictions on Transferability. 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; 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.

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

Section 6), shall be stamped or otherwise imprinted with a legend in substantially the following form:

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

6.3 Removal of Legend and Transfer Restrictions. The foregoing legend shall be removed from the certificates representing any 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.

## ARTICLE 7

### MISCELLANEOUS

7.1 [Intentionally omitted.]

7.2 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.

7.3 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 (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:

(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.

7.4 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.

7.5 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.

7.6 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.

7.7 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Massachusetts without regard to principles of conflicts of law.

7.8 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.

7.9 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.

7.10 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 Section 5.2 may not be assigned or transferred.

7.11 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.

7.12 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 fifteen (15) days prior written notice (or such shorter period as required by law) 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.

7.13 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.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

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  
Chief Executive Officer

PURCHASER:

PILLAR PHARMACEUTICALS I, L.P.

By: /s/ Youssef El Zein  
Name: Youssef El Zein  
Title: Director

**EXHIBIT A**  
**Schedule of Purchasers**

	<u>Shares</u>	<u>Warrants</u>	<u>Purchase Price</u>
Pillar Pharmaceuticals I, L.P. Address: Pillar Invest Offshore SAL Starco Center, Bloc B, Third Floor Omar Daouk Street Beirut 2020-3313 Lebanon	1,124,260	2,810,650	\$ 9,499,997.00

Tel: +961 1 363 362  
Fax: +961 1 379 378  
Email: [pillar@pillarinvest.com](mailto:pillar@pillarinvest.com)

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**EXHIBIT B**

**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**

Warrant No. \_\_\_\_

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

Original Issue Date: November \_\_, 2011

Common Stock Purchase Warrant

(Void after November \_\_, 2016)

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 \_\_, 2016, \_\_\_\_\_ 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.

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 4, 2011 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

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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).

(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 a holder of Series D 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 Company following such exercise, or (b) the combined voting power of the securities of the Company beneficially owned by a holder of Series D 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 Company then outstanding following such exercise, unless, in either case, the Company obtains the requisite stockholder approval under NASDAQ Marketplace Rule 5635(b), in which case, the Issuance Limitation under this Section 1(e) shall no longer apply to the Registered Holder. 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) Adjustments to Purchase Price for Diluting Issues. In the event that the Series D Conversion Price (as defined in the Certificate of Designations, Preferences and Rights of the Series D Convertible Preferred Stock of the Company (the "Certificate of Designations")) shall be adjusted pursuant to Section 4.4.4 of the Certificate of Designations, the Purchase Price hereunder shall, automatically and concurrently with the adjustment to the Series D Conversion Price, be adjusted in the same manner and same proportion as the Series D Conversion Price is so adjusted.

(b) 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.

(c) 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:

(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.

(d) Adjustment in Number of Warrant Shares. When any adjustment is required to be made in the Purchase Price pursuant to subsections 2(b) or 2(c), 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.

(e) 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.

(f) 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(b), 2(c) or 2(e)) (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.



(g) 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 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 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 4, 2013, 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 \$6.51 (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.

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.

(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).

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 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.

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 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 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](mailto: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](mailto: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 party against which enforcement of the change or waiver is sought. 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 Commonwealth of Massachusetts (without reference to the conflicts of law provisions thereof).

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

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:

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.

**EXHIBIT C**  
**CERTIFICATE OF DESIGNATIONS, PREFERENCES AND RIGHTS**  
**OF**  
**SERIES D 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 following resolution was adopted by the Board at a meeting duly called and held on November 4, 2011, 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 D Convertible Preferred Stock” (the “**Series D Preferred Stock**”) and shall consist of 1,124,260 shares. The shares of Series D 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 D Preferred Stock shall be entitled to receive, with respect to each share of Series D Preferred Stock then outstanding and held by such holder of Series D Preferred Stock, dividends, commencing from the date of issuance of such share of Series D Preferred Stock, at the rate of seven percent (7%) per annum (on the basis of a 360 day year) of the Series D Original Issue Price (as defined below) (the “**Series D Preferred Dividends**”). The Series D Preferred Dividends shall be cumulative, whether or not earned or declared, shall be paid quarterly in arrears on the last day of December, March, June and September (a “**Quarterly Dividend Payment Date**”) in each year that Series D Preferred Stock is outstanding, with the first Quarterly Dividend Payment Date being December 31, 2011, and shall be prorated for periods shorter than one quarter. The rights of a holder of Series D Preferred Stock as Series D Preferred Dividends shall rank senior to the rights of the Corporation’s Series A Convertible Preferred Stock as to dividends. The Series D Preferred Dividends shall be paid to each holder of Series D Preferred Stock in cash out of legally available funds or, at the Corporation’s election, through the issuance of such number of shares of the Corporation’s Common Stock, par value \$0.001 per share (the “**Common Stock**”) (rounded down to the nearest whole share with any fractional shares being issued in cash in an amount equal to the Market Price (as defined in Section 4.2 below) of such fractional share of Common Stock) determined by dividing the amount of the total accrued but unpaid dividends

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then outstanding on such holder's shares of Series D Preferred Stock by the Market Price then in effect (which for this purpose may not be less than \$1.46 per share, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock); provided, however, that (i) the Corporation may not pay such dividends in shares of Common Stock on or prior to December 31, 2014, (ii) the Corporation may not issue shares of Common Stock in excess of that number of shares of Common Stock which, upon giving effect to such issuance, would cause (a) the aggregate number of shares of Common Stock beneficially owned by a holder of Series D 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 following such issuance, or (b) the combined voting power of the securities of the Corporation beneficially owned by a holder of Series D 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 issuance, unless, in either case, the Corporation obtains the requisite stockholder approval under NASDAQ Marketplace Rule 5635(b) (the "**Issuance Limitation**"), in which case, the Issuance Limitation under this clause (ii) shall no longer apply to the payment of dividends hereunder and (iii) if clause (ii) shall in fact limit the issuance of any shares of Common Stock in payment of a given dividend, then the Corporation's election to pay such dividend in shares of Common Stock shall be ineffective to the extent of such limitation and such dividend shall instead thereupon be paid in cash by the Corporation out of legally available funds. Any election by the Corporation to pay Series D Preferred Dividends in cash or shares of Common Stock shall be made uniformly with respect to all outstanding shares of Series D Preferred Stock for a given dividend period. For purposes of this Section 1.1 the aggregate number of shares of Common Stock or voting securities beneficially owned by a holder of Series D 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, shall include the shares of Common Stock to be issued as part of such dividend payment, 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.

1.2 Notwithstanding the foregoing, if any Series D Preferred Dividend is not paid by the Corporation within five trading days following a Quarterly Dividend Payment Date, such Series D Preferred Dividend shall continue to accrue and the Corporation shall be obligated to pay the holders a late fee with respect to such Series D 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 D 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 D Preferred Dividend (i) that the Corporation is not permitted to pay under Delaware law or (ii) to be paid in cash that is not paid at a time when the Corporation has less than \$10 million of cash and cash equivalents as of the applicable Quarterly Dividend Payment Date as certified in writing by the Corporation to the holders.

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 Common Stock payable in shares of Common Stock and dividends on the Series A Convertible Preferred Stock in accordance with Section 2(a) of the Certificate of Designations for the Series A Convertible Preferred Stock) unless the holders of the Series D Preferred Stock then outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Series D 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 D 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 D 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 D 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 D 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 D 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 D 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 D Preferred Stock dividend.

1.4 The “**Series D Original Issue Price**” shall mean \$8.1375 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 D Preferred Stock.

## 2. Liquidation, Dissolution or Winding Up.

2.1 Payments to Holders of Series D Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation, the holders of shares of Series D 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 or any other class of capital stock of the Corporation ranking junior to the Series D Preferred Stock as to liquidation, by reason of their ownership thereof, an amount per share equal to the greater of (i) the Series D Original Issue Price, plus any dividends accrued or declared but unpaid thereon, or (ii) such amount per share as would have been payable with respect to such share had all shares of Series D Preferred Stock been converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution or winding up. 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 D Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1, the holders of shares of Series D 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. 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 D 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.

3. Voting. 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 D Preferred Stock shall be entitled to cast a number of votes equal to the number of whole shares of Common Stock into which the shares of Series D 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 D Preferred Stock shall vote together with the holders of Common Stock as a single class.

#### 4. Optional Conversion.

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

##### 4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of Series D 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 D Original Issue Price by the Series D Conversion Price (as defined below) in effect at the time of conversion. The “**Series D Conversion Price**” shall initially be equal to \$1.6275. Such initial Series D Conversion Price, and the rate at which shares of Series D 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 D Preferred Stock and such holder shall not be entitled to convert its shares of Series D 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 D 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 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 D Preferred Stock) following such conversion, or (b) the combined voting power of the securities of the Corporation beneficially owned by a holder of Series D 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 Corporation obtains the requisite stockholder approval under NASDAQ Marketplace Rule 5635(b) unless the Corporation obtains the requisite stockholder approval under NASDAQ Marketplace Rule 5635(b), in which case, this limitation under this Section 4.1.1 shall no longer apply to the holder. For purposes of this Section 4.1.1, 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 Exchange Act shall include the shares of Common Stock issuable upon the conversion of the Series D 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.

4.1.2 Termination of Conversion Rights. In the event of a notice of redemption of any shares of Series D Preferred Stock pursuant to Section 5 or 6, 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, 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 D Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Series D 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 D 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 Corporation's common stock ending on the trading day immediately prior to the date of determination and (b) the closing price of the Corporation's 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 of Directors of the Corporation 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). Upon request of a holder of Series D Preferred Stock, the Board of Directors (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 D Preferred Stock to voluntarily convert shares of Series D Preferred Stock into shares of Common Stock, such holder shall surrender the certificate or certificates for such shares of Series D 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 D 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 D 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 D 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 D 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) pay all accrued or declared but unpaid dividends on the shares of Series D Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when the Series D 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 D 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 D 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 D 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 D Conversion Price below the then par value of the shares of Common Stock issuable upon conversion of the Series D 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 D Conversion Price.

4.3.3 Effect of Conversion. All shares of Series D 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 D 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 D Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Series D Conversion Price shall be made for any declared but unpaid dividends on the Series D 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 D 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 D 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 Adjustments to Series D Conversion Price for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

- (a) “**Option**” shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.
- (b) “**Series D Original Issue Date**” shall mean the date on which the first share of Series D Preferred Stock was issued.
- (c) “**Convertible Securities**” shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.
- (d) “**Additional Shares of Common Stock**” shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series D Original Issue Date, other than (1) the following shares of Common Stock and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, “**Exempted Securities**”):
  - (i) shares of Common Stock, Options or Convertible Securities issued as a dividend or distribution on Series D Preferred Stock;
  - (ii) shares of Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 4.5, 4.6, 4.7 or 4.8;
  - (iii) shares of Common Stock or Options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors of the Corporation;

- (iv) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;
- (v) shares of Common Stock, Options or Convertible Securities issued as payments of interest on notes or other indebtedness of the Company;
- (vi) shares of Common Stock, Options or Convertible Securities issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors of the Corporation;
- (vii) shares of Common Stock, Options or Convertible Securities issued to suppliers or third party service providers in connection with the provision of goods or services, including placement agents, pursuant to transactions approved by the Board of Directors of the Corporation;
- (viii) shares of Common Stock, Options or Convertible Securities issued pursuant to the acquisition of another corporation by the Corporation by merger, purchase of substantially all of the assets or other reorganization or to a joint venture agreement, provided, that such issuances are approved by the Board of Directors of the Corporation; or
- (ix) shares of Common Stock, Options or Convertible Securities issued in connection with sponsored research, collaboration, technology license, development, marketing or other similar agreements or strategic partnerships approved by the Board of Directors of the Corporation.

4.4.2 No Adjustment of Series D Conversion Price. No adjustment in the Series D Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the Requisite Holders agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. The term "Requisite Holders"



shall mean the holders of at least a majority of the then outstanding shares of Series D Preferred Stock.

#### 4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series D Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the Series D Conversion Price pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the Series D Conversion Price computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Series D Conversion Price as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the Series D Conversion Price to an amount which exceeds the lower of (i) the Series D Conversion Price in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Series D Conversion Price that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to the Series D Conversion Price pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than the Series D Conversion Price then in effect, or because such Option or Convertible

Security was issued before the Series D Original Issue Date), are revised after the Series D Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a)) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Series D Conversion Price pursuant to the terms of Subsection 4.4.4, the Series D Conversion Price shall be readjusted to such Series D Conversion Price as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the Series D Conversion Price provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the Series D Conversion Price that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the Series D Conversion Price that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Series D Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time after the Series D Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than \$1.46 (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock), then the Series D Conversion Price shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in

accordance with the formula below; provided, however that in no event shall the Series D Conversion Price hereunder be reduced under this Section 4.4.4 to a price that is less than \$1.46 (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Common Stock):

$$CP2 = CP1 * (A + B) \div (A + C).$$

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

- (a) "CP2" shall mean the Series D Conversion Price in effect immediately after such issue of Additional Shares of Common Stock
- (b) "CP1" shall mean the Series D Conversion Price in effect immediately prior to such issue of Additional Shares of Common Stock;
- (c) "A" shall mean the number of shares of Common Stock outstanding immediately prior to such issue of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issue or upon conversion or exchange of Convertible Securities (including the Series D Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);
- (d) "B" shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP1); and
- (e) "C" shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

- (a) Cash and Property: Such consideration shall:
  - (i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;
  - (ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors of the Corporation; and

- (iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors of the Corporation.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing

- (i) the total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by
- (ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Series D Conversion Price pursuant to the terms of Subsection 4.4.4, and such issuance dates occur within a period of no more than 90 days from the first such issuance to the final such issuance, then, upon the final such issuance, the Series D Conversion Price shall be readjusted to give effect to all such

issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series D Original Issue Date effect a subdivision of the outstanding Common Stock, the Series D 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 D Original Issue Date combine the outstanding shares of Common Stock, the Series D 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.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series D 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 event the Series D 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 D 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 D Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Series D 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 D 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 D Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series D 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 Section 1 do not apply to such dividend or distribution, then and in each such event the holders of Series D 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 D Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. If there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Series D Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Series D Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to 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 D 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 of Directors of the Corporation) 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 D 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 D 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 D Preferred Stock.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Series D 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 D 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 D 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 D 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 D 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 D Preferred Stock.

4.10 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 D 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 D 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 D 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 D 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.

5. Redemption by Corporation.

5.1 Redemption. Shares of Series D Preferred Stock may be redeemed by the Corporation out of funds lawfully available therefor at a price equal to the Series D Original Issue Price per share, plus all accrued or declared but unpaid dividends thereon (the "**Redemption Price**"), at any time after November 4, 2013, 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 200% of the Series D Conversion Price, provided that the Corporation provides written notice of such redemption to each holder of Series D Preferred Stock within 30 days of the end of such 30 consecutive trading day period (the "**Redemption Notice**"). The Corporation shall send the Redemption Notice to each holder of record of Series D Preferred Stock not less than 30 days prior to the date fixed by the Corporation for such redemption (the "**Redemption Date**"). The Redemption Notice shall state:

(a) the Redemption Date and the 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 D Preferred Stock to be redeemed.

5.2 Surrender of Certificates; Payment. On or before the Redemption Date, each holder of shares of Series D Preferred Stock, unless such holder has exercised his, her or its right to convert such shares as provided in Section 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 Redemption Notice, and thereupon the 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.

5.3 Rights Subsequent to Redemption. If the Redemption Notice shall have been duly given, and if on the Redemption Date the Redemption Price payable upon redemption of the shares of Series D Preferred Stock 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 D Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Series D Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive the Redemption Price without interest upon surrender of their certificate or certificates therefor.

#### 6. Fundamental Change Redemption.

6.1 Fundamental Change. Upon the occurrence of a Fundamental Change, each holder of shares of Series D Preferred Stock may, at its sole option, require the Corporation to purchase all or a portion of its shares of Series D Preferred Stock (the “**Fundamental Change Redemption**”) at a price equal to Redemption Price. A “Fundamental Change” shall mean any of the following events:

(a) any “person” or “group” (each term as defined in the Exchange Act) that is not an affiliate of any holder of shares of Series D Preferred Stock becoming the “beneficial owner” (as defined in the Exchange Act) of voting securities of the Corporation, representing 66 2/3% or more of the outstanding voting securities of the Corporation (treating all securities convertible or exchangeable into or exercisable for shares of Common Stock as having been fully converted, exchanged and exercised, without regard to any exercise, conversion or exchange limitations therein) other than in connection with a transaction described in clause (d) below;

(b) the recapitalization or reclassification of the Common Stock of the Corporation;



(c) a sale of all or substantially all of the assets of the Corporation's assets to a person that is not an affiliate of any holder of shares of Series D Preferred Stock; or

(d) a merger, consolidation, business combination or similar transaction the result of which a "person" or "group" (each as defined in the Exchange Act) that is not an affiliate of any holder of shares of Series D Preferred Stock owns voting securities representing 66 2/3% or more of the outstanding voting securities of the surviving entity upon completion of such transaction.

**6.2 Exercise of Fundamental Change Redemption Option.** The Company shall send a written notice (the "**Fundamental Change Notice**") to each holder of shares of Series D Preferred Stock of (i) the occurrence of a Fundamental Change described in Subsection 6.1(a) above, within 10 days of the Corporation's becoming aware of the occurrence of such Fundamental Change, and (ii) a Fundamental Change described in Subsection 6.1(b)-(d) above, in accordance with Section 4.10. The Fundamental Change Notice shall describe the Fundamental Change and state that each holder of shares of Series D Preferred Stock has the right to require a Fundamental Change Redemption. In order to require a Fundamental Change Redemption, a holder of Series D Preferred Stock must deliver written notice to the Corporation requesting the Fundamental Change Redemption within five days after the date of the Fundamental Change Notice and stating the number of shares of Series D Preferred Stock to be redeemed. Unless prohibited by Delaware law governing distributions to stockholders, the Corporation shall redeem the shares of Series D Preferred Stock requested to be redeemed at a price equal to the Redemption Price and on a date to be fixed by the Corporation which shall not be more than 30 days from the date of the last timely delivered Fundamental Change Redemption request. If, on the date of the Fundamental Change Redemption, Delaware law governing distributions to stockholders prevents the Corporation from redeeming all shares of Series D Preferred Stock to be redeemed, the Corporation shall ratably redeem the maximum number of shares that it may redeem consistent with such law, and shall redeem the remaining shares as soon as it may lawfully do so under such law.

**6.3 Redemption Notice.** Following receipt of a timely request for a Fundamental Change Redemption by a holder of Series D Preferred Stock, the Corporation shall send written notice of the mandatory redemption to the holder stating:

- (a) the date fixed for the Fundamental Redemption (the "**Fundamental Redemption Date**") and the 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 D Preferred Stock to be redeemed.

**6.4 Surrender of Certificates; Payment.** On or before the Fundamental Redemption Date, each holder of shares of Series D 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 Section 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 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 D Preferred Stock represented by a certificate are redeemed, a new certificate representing the unredeemed shares of Series D Preferred Stock shall promptly be issued to such holder.

6.5 Rights Subsequent to Redemption. If on the Fundamental Redemption Date the Redemption Price payable upon redemption of the shares of the Series D 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 D Preferred Stock so called for redemption shall not have been surrendered, dividends with respect to such shares of Series D Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Fundamental Redemption Date terminate, except only the right to the holders to receive the Redemption Price without interest upon surrender of their certificate or certificates therefor.

6.6 Fundamental Change and Dividends. Upon the occurrence of a Fundamental Change as described in Subsection 6.1(c)-(d), the Company's obligation to pay Series D Preferred Dividends shall terminate.

7. Redeemed or Otherwise Acquired Shares. Any shares of Series D Preferred Stock that are redeemed or otherwise acquired 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 D Preferred Stock following redemption.

8. Waiver. Any of the rights, powers, preferences and other terms of the Series D Preferred Stock set forth herein may be waived on behalf of all holders of Series D Preferred Stock by the affirmative written consent or vote of the Requisite Holders.

9. Notices. Any notice required or permitted to be given to a holder of shares of Series D 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 \_\_\_\_ day of November, 2011.

By: \_\_\_\_\_  
Chief Executive Officer

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

REGISTRATION RIGHTS AGREEMENT (this "AGREEMENT"), dated as of November \_\_, 2011, 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 D 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:

I. 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").

iii. "REGISTRABLE SECURITIES" means (a) the shares of Common Stock issued or issuable upon the conversion of the Shares (the "CONVERSION SHARES"), (b) the

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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.

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. 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 2, 2012. The Registration Statement filed hereunder, to the extent allowable under the Securities Act, shall state that such Registration Statement also covers such indeterminate number of additional shares of Common Stock as may become issuable upon conversion of the Preferred Stock or exercise of the Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions.

B. PAYMENTS BY THE COMPANY. If the Registration Statement is not declared effective by the SEC on or before March 4, 2012 (the "REGISTRATION DEADLINE") or, (ii) if, after the Registration Statement has been declared effective by the SEC, sales of any of the Registrable Securities 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 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). 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 (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 Registration Statement filed pursuant to Section 2(A) is declared effective by the SEC, and (B) during which sales of any Registrable Securities 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. 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 Purchase 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).

### 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 the Registration Statement and the prospectus used in connection with the Registration Statement as may be necessary to keep the Registration Statement effective pursuant to Rule 415 at all times until no Registrable Securities remain outstanding (the "REGISTRATION PERIOD"), and, during such period, comply with the provisions of the Securities Act in order to 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 the 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 the Registration Statement 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 such Registration Statement has been filed and of any request by the Commission 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 and, if requested, such Purchasers shall immediately cease making offers of Registrable Securities and return all prospectuses 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 Registration Statement.

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 Statement 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, the Company shall prepare and file with the SEC such amendments (including post effective amendments) and supplements to a 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 Registration Statement, 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 the 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.

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.

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 noticed, 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.

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.

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, the Registration Statement; or (ii) suspend the Registration Statement after effectiveness and require that the Purchasers immediately cease sales of Registrable Securities pursuant to the 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 (as defined below) 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 Statement and/or give written notice to the Purchasers authorizing them to resume sales pursuant to the Registration Statement. If, as a result thereof, the prospectus included in the Registration Statement has been amended to comply with the requirements of the Securities Act, the Company shall enclose such revised prospectus 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 Statement 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.

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

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

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 Commonwealth of Massachusetts 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.

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.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

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

IDERA PHARMACEUTICALS, INC.

By: \_\_\_\_\_  
Name: Sudhir Agrawal  
Its: Chief Executive Officer and President

PURCHASER:

PILLAR PHARMACEUTICALS I, L.P.

By: \_\_\_\_\_  
Name:  
Title:



EXHIBIT A

Purchasers

Pillar Pharmaceuticals I, L.P.

EXHIBIT E

WILMERHALE

+ 1 617 526 6000 (t)  
+ 1 617 526 6000 (t)

wilmerhale.com  
wilmerhale.com

November \_\_, 2011

To the Purchasers Named on  
Schedule A attached hereto

Re: Convertible Preferred Stock and Warrant Financing of  
Idera Pharmaceuticals, Inc.

Ladies and Gentlemen:

This opinion is being furnished pursuant to Section 2.1(E) of the Convertible Preferred Stock and Warrant Purchase Agreement, dated as of November \_\_, 2011 (the "Agreement"), by and among Idera Pharmaceuticals, Inc., a Delaware corporation (the "Company"), and each of the persons identified in the Agreement as a "Purchaser" (each of whom is named on Schedule A attached hereto (collectively, the "Purchasers" and individually, a "Purchaser")). Capitalized terms used herein and not otherwise defined shall have the respective meanings ascribed to them in the Agreement.

We have acted as counsel to the Company in connection with the preparation, execution and delivery of the Agreement. As such counsel, we have examined and are familiar with and have relied upon the following documents:

- (a) the Restated Certificate of Incorporation, as amended to date (the "Certificate of Incorporation"), and Amended and Restated By-laws, as amended to date (the "By-laws"), of the Company;
- (b) the Certificate of Designations, Preferences and Rights of Series D Preferred Stock of the Company, as filed with the Secretary of State of the State of Delaware on November \_\_, 2011 (the "Certificate of Designations");
- (c) a Certificate of the Secretary of State of the State of Delaware, dated November 3, 2011, attesting to the continued legal existence and corporate good standing of the Company in Delaware (the "Domestic Certificate");
- (d) a Certificate of the Secretary of State of the Commonwealth of Massachusetts, dated November 2, 2011, attesting to the good standing and due qualification of the Company to transact business in Massachusetts (the "Foreign Qualification Certificate");
- (e) the Agreement and the Registration Rights Agreement dated of even date herewith among the Company and the Purchasers (the "Registration Rights Agreement" and together with the Agreement the "Transaction Documents"); and

Wilmer Cutler Pickering Hale and Dorr llp, 60 State Street, Boston, Massachusetts 02109  
Beijing Berlin Boston Brussels Frankfurt London Los Angeles New York Oxford Palo Alto Waltham Washington

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To the Purchasers Named on  
Schedule A attached hereto

November \_\_, 2011

- (f) an Officer's Certificate from the Company, dated as of the date hereof (the "Officer's Certificate"), attesting to the Company's Certificate of Incorporation and By-laws, certain resolutions adopted by the Board of Directors of the Company, the incumbency of certain officers of the Company and as to certain other matters.

In our examination of the documents described above, we have assumed the genuineness of all signatures, the legal capacity of all individual signatories, the completeness of all corporate and stock records provided to us, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as copies, and the authenticity of the originals of such latter documents.

In rendering this opinion, we have relied, as to all questions of fact material to this opinion, upon certificates of public officials and officers of the Company and upon the representations and warranties made by the Purchasers and the Company in the Agreement. We have not attempted to verify independently such facts. We have not conducted a search of any electronic databases or the dockets of any court, administrative or regulatory body, agency or other filing office in any jurisdiction.

For purposes of this opinion, we have assumed that the Transaction Documents have been duly authorized, executed and delivered by all parties thereto other than the Company, and that all such other parties have all requisite power and authority to effect the transactions contemplated by the Transaction Documents. We have also assumed that each Transaction Document is the valid and binding obligation of each party thereto other than the Company and is enforceable against such other parties in accordance with its terms. We do not render any opinion as to the application of any federal or state law or regulation to the power, authority or competence of any party to the Transaction Documents other than the Company.

For purposes of this opinion we have assumed that the Board of Directors of the Company has complied with its fiduciary duties in connection with the transactions contemplated by the Transaction Documents and the Warrants. We have also assumed for purposes of Section 144 of the DGCL Statute (as defined below), that the Transaction Documents and the Warrants are fair as to the Company as of the time they were authorized, approved or ratified by the Board of Directors of the Company.

Our opinions set forth below are qualified to the extent that they may be subject to or affected by (i) applicable bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance or similar laws relating to or affecting the rights of creditors generally, (ii) statutory or decisional law concerning recourse by creditors to security in the absence of notice or hearing, (iii) duties and standards imposed on creditors and parties to contracts, including, without limitation, requirements of good faith, reasonableness and fair dealing, and (iv) general equitable principles. We express no opinion as to the availability of any equitable or specific remedy upon any breach

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To the Purchasers Named on  
Schedule A attached hereto

November \_\_, 2011

of any of the agreements as to which we are opining herein, or any of the agreements, documents or obligations referred to therein, or to the successful assertion of any equitable defenses, inasmuch as the availability of such remedies or the success of any equitable defense may be subject to the discretion of a court. We are expressing no opinion herein as to the enforceability of Section 6 of the Registration Rights Agreement. We are expressing no opinion herein with respect to compliance by the Company with state securities or "blue sky" laws, or with any state or federal securities antifraud laws.

We also express no opinion herein as to any provision of any agreement (a) which may be deemed to or construed to waive any right of the Company, (b) to the effect that rights and remedies are not exclusive, that every right or remedy is cumulative and may be exercised in addition to or with any other right or remedy and does not preclude recourse to one or more other rights or remedies, (c) relating to the effect of invalidity or unenforceability of any provision of the Transaction Documents or the Warrants on the validity or enforceability of any other provision thereof, (d) requiring the payment of penalties, consequential damages or liquidated damages, (e) which is in violation of public policy, including, without limitation, any provision relating to indemnification and contribution with respect to securities law matters, (f) purporting to indemnify any person against his, her or its own negligence or intentional misconduct, (g) which provides that the terms of the Transaction Documents or the Warrants may not be waived or modified except in writing or (h) relating to choice of law or consent to jurisdiction.

Our opinions expressed in paragraph 1 below, insofar as they relate to the valid existence, due qualification and good standing of the Company, are based solely on the Domestic Certificate and the Foreign Qualification Certificate and are limited accordingly, and, as to such matters, our opinions are rendered as of the respective dates of such certificates. We express no opinion as to the tax good standing of the Company in any jurisdiction.

For purposes of our opinions in paragraphs 5 and 6 below, we have relied upon representations made by the Purchasers in Article 4 of the Agreement, and have assumed (without any independent investigation) the accuracy of such representations. For purposes of our opinions in paragraphs 5 and 6 below, we have also assumed that in connection with the offer and sale of securities to the Purchasers, neither the Company nor any person acting on its behalf has engaged in any form of "general solicitation or general advertising" within the meaning contemplated by Rule 502 (c) of Regulation D.

We are opining herein solely as to the state laws of the Commonwealth of Massachusetts, the statutes codified as 8 Del. C. §§101-398 and known as the General Corporation Law of the State of Delaware (the "DGCL Statute") and the federal laws of the United States of America. To the extent that any other laws govern any of the matters as to which we are opining below, we have assumed, with your permission and without independent investigation, that such laws are identical to the state laws of the Commonwealth of Massachusetts, and we express no opinion as to whether such assumption is reasonable or correct.

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To the Purchasers Named on  
Schedule A attached hereto

November \_\_\_\_, 2011

For purposes of our opinions rendered below, we have assumed that the facts and law governing the future performance by the Company of its obligations under the Transaction Documents and the Warrants will be identical to the facts and law governing its performance on the date of this opinion.

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

1. The Company is a corporation validly existing and in good standing under the laws of the State of Delaware and has all requisite corporate power and authority to conduct its business as it is, to our knowledge, currently conducted, to enter into and perform its obligations under the Transaction Documents and the Warrants, and to carry out the transactions contemplated by the Transaction Documents and the Warrants. The Company is duly qualified to do business and is in good standing in the Commonwealth of Massachusetts.
  2. The authorized capital stock of the Company on the date hereof consists of (i) 70,000,000 shares of Common Stock, \$.001 par value per share (the "Common Stock"), and (ii) 5,000,000 shares of Preferred Stock, \$.01 par value per share, of which 1,500,000 shares have been designated Series A Convertible Preferred Stock, 200,000 shares have been designated Series C Junior Participating Preferred Stock and \_\_\_\_\_ shares have been designated as Series D Convertible Preferred Stock.
  3. The Shares, and the shares of Common Stock issuable upon conversion of the Shares and exercise of the Warrants, have been duly authorized or reserved for issuance by all necessary corporate actions on the part of the Company; and the Shares, when issued, sold and delivered against payment therefor in accordance with the provisions of the Agreement, and the shares of Common Stock issuable upon conversion of the Shares and exercise of the Warrants, when issued upon such conversion or exercise, will be duly and validly issued, fully paid and non-assessable.
  4. The execution and delivery by the Company of the Transaction Documents and the Warrants, and the consummation by the Company of the transactions contemplated thereby, have been duly authorized by all necessary corporate actions on the part of the Company, and the Transaction Documents and the Warrants have been duly executed and delivered by the Company. Each of the Transaction Documents and each of the Warrants constitutes the valid and binding obligation of the Company, enforceable against the Company in accordance with its terms.
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To the Purchasers Named on  
Schedule A attached hereto

November \_\_\_\_, 2011

5. The execution and delivery by the Company of the Transaction Documents and the Warrants, and the consummation by the Company of the transactions contemplated thereby, do not (a) violate the provisions of any U.S. federal or Massachusetts state law, rule or regulation applicable to the Company or the DGCL Statute; (b) violate the provisions of the Company's Certificate of Incorporation or By-laws, each as amended to date; and (c) violate any judgment, decree, order or award of any court, governmental body or arbitrator specifically naming the Company of which we are aware.
6. Based in part on the representations of each of the Purchasers in Article 4 of the Agreement, the offer, issuance and sale of the Shares and the Warrants pursuant to the Agreement are exempt from registration under the Securities Act of 1933, as amended.
7. Except for such post-closing filings as may be required under federal or state securities laws and the filing of the Certificate of Designations with the Secretary of State of the State of Delaware, no consent, approval or authorization of, or designation, declaration or filing with, any Delaware state governmental authority under the DGCL Statute or any United States federal or Massachusetts state governmental authority is required on the part of the Company in connection with the execution and delivery by the Company of the Transaction Documents and the Warrants or the consummation by the Company of the transactions contemplated thereby.

This opinion is provided to the Purchasers as a legal opinion only and not as a guaranty or warranty of the matters discussed herein. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions and is rendered as of the date hereof, and we disclaim any obligation to advise you of any change in any of the foregoing sources of law or subsequent developments in law or changes in facts or circumstances which might affect any matters or opinions set forth herein.

This opinion is rendered only to the Purchasers and is solely for the benefit of the Purchasers in connection with the transactions contemplated by the Transaction Documents. This opinion may not be relied upon by the Purchasers for any other purpose, nor may this opinion be provided to, quoted to or relied upon by any other person or entity for any purpose without our prior written consent.

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To the Purchasers Named on  
Schedule A attached hereto

November \_\_\_\_, 2011

Very truly yours,

WILMER CUTLER PICKERING  
HALE AND DORR LLP

By: \_\_\_\_\_  
Stuart M. Falber, Partner

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To the Purchasers Named on  
Schedule A attached hereto  
November \_\_\_\_, 2011

Schedule A

Purchasers

Pillar Pharmaceuticals I, L.P.

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**EXHIBIT F**  
**IDERA PHARMACEUTICALS, INC.**  
**167 Sidney Street**  
**Cambridge, Massachusetts 02139**

[Date]

**SELLING STOCKHOLDER QUESTIONNAIRE**

To: *Idera Pharmaceuticals, Inc.*  
c/o Rebecca Nauta, Esq.  
WilmerHale  
60 State Street  
Boston, Massachusetts 02109  
Facsimile: (617) 526-5000

Reference is made to (i) that certain Convertible Preferred Stock and Warrant Purchase Agreement, dated November \_\_, 2011 (the "Purchase Agreement"), between Idera Pharmaceuticals, Inc. (the "Company") and the Purchasers (as defined therein) and (ii) that certain Registration Rights Agreement, dated November \_\_, 2011 (the "Registration Rights Agreement"), by and among the Company and the Purchasers (as defined therein).

Pursuant to Section 4.2 of the Purchase Agreement, the undersigned selling stockholder (the "Selling Stockholder") hereby furnishes to the Company the following information for use by the Company in connection with the preparation of the Registration Statement contemplated by Section 2 of the Registration Rights Agreement. For purposes of this questionnaire, "Registrable Securities" means shares of the Company's common stock issuable upon exercise of the Warrants (the "Warrants") and conversion of shares of the Series D Convertible Preferred Stock (the "Shares") purchased by the Selling Stockholder pursuant to the Purchase Agreement.

**(1) Name and Contact Information:**

Full legal name of record holder: \_\_\_\_\_

Address of record holder: \_\_\_\_\_

Social Security Number or Taxpayer identification number of record holder: \_\_\_\_\_

Identity of beneficial owner (if different than record holder): \_\_\_\_\_

Name of contact person: \_\_\_\_\_

Telephone number of contact person: \_\_\_\_\_

Fax number of contact person: \_\_\_\_\_

E-mail address of contact person: \_\_\_\_\_

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**(2) Beneficial Ownership of Registrable Securities:**

(a) Number of Registrable Securities owned by Selling Stockholder:

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(b) Number of Registrable Securities requested to be registered:

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**(3) Beneficial Ownership of Other Securities of the Company Owned by the Selling Stockholder:**

Except as set forth below in this Item (3), the undersigned is not the beneficial or registered owner of any securities of the Company other than the Registrable Securities listed above in Item (2)(a).

Type and amount of other securities beneficially owned by the Selling Stockholder:

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**(4) Relationships with the Company:**

Except as set forth below, neither the undersigned nor any of its affiliates, officers, directors or principal equity holders (5% or more) has held any position or office or has had any other material relationship with the Company (or its predecessors or affiliates) during the past three years.

State any exceptions here:

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**(5) Plan of Distribution:**

Except as set forth below, the undersigned intends to distribute pursuant to the Registration Statement the Registrable Securities listed above in Item (2) in accordance with the "Plan of Distribution" section set forth therein:

State any exceptions here:

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**Note:** *In no event will such method(s) of distribution take the form of an underwritten offering of the Registrable Securities without the prior agreement of the Company.*

**(6) Selling Stockholder Affiliations:**

(a) Is the Selling Stockholder a registered broker-dealer?

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(b) Is the Selling Stockholder an affiliate of a registered broker-dealer(s)? (For purposes of this response, an “affiliate” of, or person “affiliated” with, a specified person, is a person that directly, or indirectly through one or more intermediaries, controls or is controlled by, or is under common control with, the person specified.)

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(c) If the answer to Item (6)(b) is yes, identify the registered broker-dealer(s) and describe the nature of the affiliation(s):

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(d) If the answer to Item (6)(b) is yes, did the Selling Stockholder acquire the Registrable Securities in the ordinary course of business (if not, please explain)?

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(e) If the answer to Item (6)(b) is yes, did the Selling Stockholder, at the time of purchase of the Registrable Securities, have any agreements, plans or understandings, directly or indirectly, with any person to distribute the Registrable Securities (if yes, please explain)?

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**Note:** *If the Selling Stockholder is an affiliate of a broker-dealer and did not purchase its Registrable Securities in the ordinary course of business or at the time of the purchase had any agreements, plans or understandings, directly or indirectly, with any person to distribute the Registrable Securities, the Company may be required to identify the Selling Stockholder as an underwriter in the Registration Statement, any amendments thereto and the related prospectus.*

**(7) Voting or Investment Control over the Registrable Securities:**

If the Selling Stockholder is not a natural person, please identify the natural person or persons who have voting or investment control over the Registrable Securities listed in Item (2) above:

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Pursuant to Section 9 of the Registration Rights Agreement, the undersigned acknowledges that the Company may, by written notice to the undersigned, suspend the Registration Statement and require that the undersigned immediately cease sales of Registrable Securities pursuant to the Registration Statement under certain circumstances described in the Registration Rights Agreement. At any time that such notice has been given, the undersigned may not sell Registrable Securities pursuant to the Registration Statement.

The undersigned hereby acknowledges receipt of a draft of the Registration Statement dated \_\_\_\_\_, \_\_\_\_\_ and confirms that the undersigned has reviewed such draft including, without limitation, the sections captioned "Selling Stockholders" and "Plan of Distribution," and confirms that, to the best of the undersigned's knowledge, the same is true, complete and accurate in every respect except as indicated in this Questionnaire. The undersigned hereby further acknowledges that pursuant to Section 6 of the Registration Rights Agreement, the undersigned shall indemnify the Company and each of its directors and officers against, and hold the Company and each of its directors and officers harmless from, any losses, claims, damages, expenses or liabilities (including reasonable attorneys fees) to which the Company or its directors and officers may become subject by reason of any statement or omission in the Registration Statement made in reliance upon, or in conformity with, a written statement by the undersigned, including the information furnished in this Questionnaire by the undersigned.

By signing below, the undersigned consents to the disclosure of the information contained herein in its answers to Items (1) through (7) above and the inclusion of such information in the Registration Statement, any amendments thereto and the related prospectus. The undersigned understands that such information will be relied upon by the Company in connection with the preparation or amendment of the Registration Statement and the related prospectus.

*[Signature page follows]*

The undersigned has reviewed the answers to the above questions and affirms that the same are true, complete and accurate. THE UNDERSIGNED AGREES TO NOTIFY THE COMPANY IMMEDIATELY OF ANY CHANGES IN THE FOREGOING INFORMATION.

Dated: November \_\_\_\_, 2011

If you are an **INDIVIDUAL** (if purchased as **JOINT TENANTS**, as **TENANTS IN COMMON**, or as **COMMUNITY PROPERTY**, each owner must sign below):

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

If you are signing on behalf of a **PARTNERSHIP, CORPORATION, LIMITED LIABILITY COMPANY** or **TRUST**:

\_\_\_\_\_  
Print Name of Partnership, Corporation, Limited Liability Company or Trust

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

Name:

Title:

**IDERA PHARMACEUTICALS, INC.**

**REGISTRATION RIGHTS AGREEMENT**

REGISTRATION RIGHTS AGREEMENT (this "AGREEMENT"), dated as of November 4, 2011, 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 D 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:

I. 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").

iii. "REGISTRABLE SECURITIES" means (a) the shares of Common Stock issued or issuable upon the conversion of the Shares (the "CONVERSION SHARES"), (b) the

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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.

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. 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 2, 2012. The Registration Statement filed hereunder, to the extent allowable under the Securities Act, shall state that such Registration Statement also covers such indeterminate number of additional shares of Common Stock as may become issuable upon conversion of the Preferred Stock or exercise of the Warrants to prevent dilution resulting from stock splits, stock dividends or similar transactions.

B. PAYMENTS BY THE COMPANY. If the Registration Statement is not declared effective by the SEC on or before March 4, 2012 (the "REGISTRATION DEADLINE") or, (ii) if, after the Registration Statement has been declared effective by the SEC, sales of any of the Registrable Securities 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 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). 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 (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 Registration Statement filed pursuant to Section 2(A) is declared effective by the SEC, and (B) during which sales of any Registrable Securities 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. 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 Purchase 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).

### 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 the Registration Statement and the prospectus used in connection with the Registration Statement as may be necessary to keep the Registration Statement effective pursuant to Rule 415 at all times until no Registrable Securities remain outstanding (the "REGISTRATION PERIOD"), and, during such period, comply with the provisions of the Securities Act in order to 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 the 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 the Registration Statement 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 such Registration Statement has been filed and of any request by the Commission 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 and, if requested, such Purchasers shall immediately cease making offers of Registrable Securities and return all prospectuses 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 Registration Statement.

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 Statement 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, the Company shall prepare and file with the SEC such amendments (including post effective amendments) and supplements to a 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 Registration Statement, 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 the 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.

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.

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 noticed, 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.

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.

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, the Registration Statement; or (ii) suspend the Registration Statement after effectiveness and require that the Purchasers immediately cease sales of Registrable Securities pursuant to the 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 (as defined below) 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 Statement and/or give written notice to the Purchasers authorizing them to resume sales pursuant to the Registration Statement. If, as a result thereof, the prospectus included in the Registration Statement has been amended to comply with the requirements of the Securities Act, the Company shall enclose such revised prospectus 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 Statement 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.

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

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

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 Commonwealth of Massachusetts 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.

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: Chief Executive Officer and President

PURCHASER:

PILLAR PHARMACEUTICALS I, L.P.

By: /s/ Youssef El Zein  
Name: Youssef El Zein  
Title: Director

EXHIBIT A

Purchasers

Pillar Pharmaceuticals I, L.P.

**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**

Warrant No. \_\_\_\_

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

Original Issue Date: November \_\_ 2011

Common Stock Purchase Warrant

(Void after November \_\_, 2016)

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 \_\_, 2016, \_\_\_\_\_ 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.

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 4, 2011 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

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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).

(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 a holder of Series D 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 Company following such exercise, or (b) the combined voting power of the securities of the Company beneficially owned by a holder of Series D 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 Company then outstanding following such exercise, unless, in either case, the Company obtains the requisite stockholder approval under NASDAQ Marketplace Rule 5635(b), in which case, the Issuance Limitation under this Section 1(e) shall no longer apply to the Registered Holder. 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) Adjustments to Purchase Price for Diluting Issues. In the event that the Series D Conversion Price (as defined in the Certificate of Designations, Preferences and Rights of the Series D Convertible Preferred Stock of the Company (the "Certificate of Designations")) shall be adjusted pursuant to Section 4.4.4 of the Certificate of Designations, the Purchase Price hereunder shall, automatically and concurrently with the adjustment to the Series D Conversion Price, be adjusted in the same manner and same proportion as the Series D Conversion Price is so adjusted.

(b) 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.

(c) 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:

(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.

(d) Adjustment in Number of Warrant Shares. When any adjustment is required to be made in the Purchase Price pursuant to subsections 2(b) or 2(c), 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.

(e) 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.

(f) 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(b), 2(c) or 2(e)) (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.



(g) 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 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 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 4, 2013, 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 \$6.51 (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.

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.

(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).

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 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.

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 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 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](mailto: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](mailto: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 party against which enforcement of the change or waiver is sought. 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 Commonwealth of Massachusetts (without reference to the conflicts of law provisions thereof).

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

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:

\_\_\_\_\_ Name of Assignee \_\_\_\_\_ Address \_\_\_\_\_ No. of Shares \_\_\_\_\_

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

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

Signature Guaranteed:

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.