

IDERA PHARMACEUTICALS, INC.  
 Form S-8  
 July 31, 2008

As filed with the Securities and Exchange Commission on July 31, 2008

Registration No. 333-\_\_\_\_\_

**UNITED STATES  
 SECURITIES AND EXCHANGE COMMISSION  
 Washington, D.C. 20549  
 FORM S-8  
 REGISTRATION STATEMENT UNDER  
 THE SECURITIES ACT OF 1933  
 Idera Pharmaceuticals, Inc.  
 (Exact Name of Registrant as Specified in Its Charter)**

**Delaware**  
 (State or Other Jurisdiction of  
 Incorporation or Organization)

**04-3072298**  
 (I.R.S. Employer  
 Identification No.)

**167 Sidney Street**  
**Cambridge, Massachusetts**  
 (Address of Principal Executive Offices)

**02139**  
 (Zip Code)

**1995 Employee Stock Purchase Plan**  
 (Full Title of the Plan)

**Sudhir Agrawal, D. Phil.**  
**Chief Executive Officer**

**Idera Pharmaceuticals, Inc.**

**167 Sidney Street**

**Cambridge, Massachusetts 02139**

(Name and Address of Agent For Service)

**(617) 679-5500**

(Telephone Number, Including Area Code, of Agent For Service)

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b2 of the Exchange Act. (Check one):

Large accelerated filer  Accelerated filer  Non-accelerated filer  Smaller reporting company

(Do not check if a smaller reporting company)

**CALCULATION OF REGISTRATION FEE**

| Title of Securities to be Registered   | Amount to be Registered(1) | Proposed Maximum Offering Price Per Share | Proposed Maximum Aggregate Offering Price | Amount of Registration Fee |
|--|----------------------------|---|---|----------------------------|
| Common Stock, \$0.001 par value per share (including the associated Preferred Stock Purchase Rights) | 125,000 shares             | \$14.78 (2)                               | \$1,847,500(2)                            | \$73.00                    |

- (1) In accordance with Rule 416 under the Securities Act of 1933, as amended, this registration statement shall be deemed to cover any additional securities that may from time to time be offered or issued to prevent dilution resulting from stock splits, stock dividends or similar transactions.
  
- (2) Estimated solely for the purpose of calculating the registration fee pursuant to Rules 457(c) and 457(h) of the Securities Act of 1933, as amended, and based upon the average of the high and low prices of the Registrant's common stock as reported on the Nasdaq Global Market on July 28, 2008.

**STATEMENT OF INCORPORATION BY REFERENCE**

This Registration Statement on Form S-8 is filed to register the offer and sale of an additional 125,000 shares of the Registrant's common stock, \$0.001 par value per share, to be issued under the Registrant's 1995 Employee Stock Purchase Plan. This Registration Statement incorporates by reference the contents of the registration statements on form S-8, File Nos. 333-03896, 333-116011 and 333-137687, filed by the Registrant on April 23, 1996, May 28, 2004 and September 29, 2006, respectively, relating to the Registrant's 1995 Employee Stock Purchase Plan.

**Item 5. Interests of Named Experts and Counsel.**

Wilmer Cutler Pickering Hale and Dorr LLP has opined as to the legality of the securities being offered by this registration statement.

**Item 8. Exhibits.**

The Exhibit Index immediately preceding the exhibits is incorporated herein by reference.

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**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in Cambridge, Massachusetts, on this 31<sup>st</sup> day of July, 2008.

IDERA PHARMACEUTICALS, INC.

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

**POWER OF ATTORNEY AND SIGNATURES**

We, the undersigned officers and directors of Idera Pharmaceuticals, Inc., hereby severally constitute and appoint Sudhir Agrawal and Louis J. Arcudi, III, and each of them singly, our true and lawful attorneys with full power to them, and each of them singly, to sign for us and in our names in the capacities indicated below, the registration statement on Form S-8 filed herewith and any and all subsequent amendments to said registration statement, and generally to do all such things in our names and on our behalf in our capacities as officers and directors to enable Idera Pharmaceuticals, Inc. to comply with the provisions of the Securities Act of 1933, as amended, and all requirements of the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorneys, or any of them, to said registration statement and any and all amendments thereto.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

| Signature                 | Title   | Date          |
|---------------------------|---|---------------|
| /s/ James B. Wyngaarden   | Chairman of the Board of Directors  | July 31, 2008 |
| James B. Wyngaarden, M.D. |   |               |
| /s/ Sudhir Agrawal        | Chief Executive Officer, Chief Scientific Officer<br>and Director (Principal Executive Officer) | July 31, 2008 |
| Sudhir Agrawal, D. Phil.  |   |               |
| /s/ Louis J. Arcudi, III  | Chief Financial Officer, Treasurer and Secretary<br>(Principal Financial Officer)               | July 31, 2008 |
| Louis J. Arcudi, III      |   |               |
| /s/ Youssef El Zein       | Director  | July 31, 2008 |
| Youssef El Zein           |   |               |
| /s/ C. Keith Hartley      | Director  | July 31, 2008 |
| C. Keith Hartley          |   |               |
| /s/ Robert W. Karr        | Director  | July 31, 2008 |
| Robert W. Karr, M.D.      |   |               |
| /s/ Hans Mueller          | Director  | July 31, 2008 |

Hans Mueller, Ph.D.

/s/ William S. Reardon

Director

July 31, 2008

William S. Reardon

/s/ Alison Taunton-Rigby

Director

July 31, 2008

Alison Taunton-Rigby, Ph.D.

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**EXHIBIT INDEX**

| EXHIBIT NUMBER | DESCRIPTION   |
|----------------|---|
| 4.1 (1)        | Rights Agreement dated December 10, 2001 between the Registrant and Mellon Investor Services LLC, as rights agent   |
| 4.2 (2)        | Amendment No. 1 to Rights Agreement dated as of August 27, 2003 between the Registrant and Mellon Investor Services LLC   |
| 4.3 (3)        | Amendment No. 2 to Rights Agreement dated as of March 24, 2006 between the Registrant and Mellon Investor Services LLC  |
| 4.4 (4)        | Amendment No. 3 to Rights Agreement dated as of January 16, 2007 between the Registrant and Mellon Investor Services LLC  |
| 5.1            | Opinion of Wilmer Cutler Pickering Hale and Dorr LLP  |
| 23.1           | Consent of Ernst & Young LLP  |
| 23.2           | Consent of Wilmer Cutler Pickering Hale and Dorr LLP (included in Exhibit 5.1 filed herewith)   |
| 24.1           | Power of Attorney (included on the signature page of this registration statement)   |
| (1)            | Previously filed with the Securities and Exchange Commission as an Exhibit to the Registrant's Registration Statement on Form S-2, dated October 10, 2003 (File No. 333-109630) and incorporated herein by reference. |
| (2)            | Previously filed with the Securities and Exchange Commission as an Exhibit to the Registrant's  |

Current Report  
on Form 8-K,  
dated August 29,  
2003 (File  
No. 000-27352)  
and incorporated  
herein by  
reference.

(3) Previously filed  
with the  
Securities and  
Exchange  
Commission as  
an Exhibit to the  
Registrant's  
Current Report  
on Form 8-K,  
dated March 29,  
2006 (File  
No. 001-31918)  
and incorporated  
herein by  
reference.

(4) Previously filed  
with the  
Securities and  
Exchange  
Commission as  
an Exhibit to the  
Registrant's  
Current Report  
on Form 8-K,  
dated January 17,  
2007 (File  
No. 001-31918)  
and incorporated  
herein by  
reference.