IDERA PHARMACEUTICALS, INC.
Form S-1
August 14, 2006

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As filed with the Securities and Exchange Commission on August 14, 2006.

Registration No. 333-

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

IDERA PHARMACEUTICALS, INC.
(Exact Name of Registrant as Specified in Its Charter)

Delaware	**04-3072298**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)

345 Vassar Street
Cambridge, Massachusetts 02139
(617) 679-5500
(Address, including zip code, and telephone number, including area code, of registrant s principal executive offices)

Sudhir Agrawal, D. Phil.
Chief Executive Officer
Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, Massachusetts 02139
(617) 679-5500
(Name, address, including zip code, and telephone number, including area code, of agent for service)

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

Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement is declared effective.

If any of the securities being registered on this form are offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended, please check the following box. þ

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

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

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

CALCULATION OF REGISTRATION FEE

Title of Shares to be Registered	**Amount to be Registered** (1)	**Proposed Maximum Offering Price Per Share** (2)	**Proposed Maximum Aggregate Offering Price**	**Amount of Registration Fee**
Common Stock, $0.001 par value per share	1,220,703	2.46	$3,002,930	$322

(1) Consists of (a) 1,220,703 shares of common stock issuable pursuant to that certain Common Stock Purchase Agreement, dated as of March 24, 2006, between us and the selling stockholder, which may be issued after the date of this Registration Statement and on or prior to December 31, 2006 in up to two drawdowns made by us at our discretion and (b) additional shares, of a currently indeterminable amount, as may from time to time become issuable by reason of stock splits, stock dividends and other similar transactions,

which shares are registered hereunder pursuant to Rule 416 under the Securities Act.

(2) Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(c) under the Securities Act and based upon the average of the high and low prices on the American Stock Exchange on August 10, 2006.

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

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The information in this prospectus is not complete and may be changed. The selling stockholder named in this prospectus may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and the selling stockholder is not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated August 14, 2006

PRELIMINARY PROSPECTUS

1,220,703 SHARES OF COMMON STOCK

This prospectus relates to the resale from time to time of up to 1,220,703 shares of common stock of Idera Pharmaceuticals, Inc. by Biotech Shares Ltd. We may refer to Biotech Shares Ltd. as the selling stockholder in this prospectus. We will not receive any proceeds from the sale of the shares offered by this prospectus.

As of August 14, 2006, none of the shares offered by this prospectus were issued and outstanding. The shares may be issued by us pursuant to the common stock purchase agreement, dated as of March 24, 2006, between us and the selling stockholder, after the date of this prospectus and on or prior to December 31, 2006 in up to two drawdowns made by us, at our discretion. See Description of Common Stock Purchase Agreement on page 15. The selling stockholder will be deemed an underwriter in connection with any sale of shares under this prospectus. See Plan of Distribution on page 19.

The selling stockholder, or its pledgees, donees, transferees or other successors-in-interest, may offer the shares from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices.

We do not know when or in what amounts the selling stockholder may offer shares for sale. The selling stockholder may not sell any or all of the shares offered by this prospectus.

Our common stock is traded on the American Stock Exchange under the symbol IDP. On August 11, 2006, the closing sale price of our common stock on the American Stock Exchange was $2.36 per share. You are urged to obtain current market quotations for our common stock.

Investing in our common stock involves a high degree of risk. See Risk Factors beginning on page 2.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is [ ] [ ], 2006.

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We have not authorized anyone to provide you with information different from that contained or incorporated by reference in this prospectus. The selling stockholder is offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of common stock.

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PROSPECTUS SUMMARY

This summary highlights important features of this offering and the information included or incorporated by reference in this prospectus. This summary may not contain all of the information that is important to you. Before deciding to invest in our common stock you should read the entire prospectus carefully, including Risk Factors beginning on page 2, and our financial statements and related notes included in our Annual Report on Form 10-K for the year ended December 31, 2005 and our Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, each of which is incorporated by reference herein.

Idera Pharmaceuticals, Inc.

We are engaged in the discovery and development of novel therapeutics that modulate immune responses through Toll-like Receptors, or TLRs, for the treatment of multiple diseases. We are developing proprietary DNA- and RNA-based compounds that modulate TLRs and are targeted to TLR7, TLR8 or TLR9. We believe that these immune modulatory oligonucleotides, or IMO™ compounds, are broadly applicable to large and growing markets where significant unmet medical needs exist, including oncology, asthma and allergies, infectious diseases and autoimmune diseases. IMO-2055, our lead drug candidate, is a synthetic DNA-based compound, which acts as an agonist for TLR9 and triggers the activation and modulation of the immune system. We are currently conducting a Phase 2 clinical trial of IMO-2055 as a monotherapy for renal cell carcinoma and a Phase 1/2 clinical trial of IMO-2055 in combination with chemotherapy agents for solid tumors. We have selected another TLR9 agonist, IMO-2125, as a lead compound for development for the treatment of infectious diseases. We are also collaborating with Novartis International Pharmaceuticals, Ltd. to develop treatments for asthma and allergies using other of our TLR9 agonist compounds. Our IMO compounds targeted to TLR7 and TLR8 are in the discovery stage.

Corporate Information

Our executive offices are located at 345 Vassar Street, Cambridge, MA 02139, our telephone number is (617) 679-5500 and our Internet address is www.iderapharma.com. The information on our Internet website is not incorporated by reference in this prospectus and should not be considered to be part of this prospectus. Our website address is included in this prospectus as an inactive technical reference only. Unless the context otherwise requires, references in this prospectus to Idera Pharmaceuticals, we, us, and our refer to Idera Pharmaceuticals, Inc. On June 2006, we effected a one-for-eight reverse stock split of our issued and outstanding common stock. All share and per share information herein reflects this reverse stock split.

Idera™, Amplivax™, IMO™ and Targeted Immune Therapy™ are our trademarks. IMOxine® and GEM® are our registered trademarks. All other trademarks and service marks appearing in this registration statement are the property of their respective owners.

The Offering

Common stock offered by selling stockholder	Up to 1,220,703 shares issuable, after the date of this prospectus and on or prior to December 31, 2006, pursuant to the common stock purchase agreement, dated as of March 24, 2006, between us and the selling stockholder. We may issue the shares in up to two drawdowns made by us, at our discretion. The 1,220,703 shares represents the maximum number of shares that we may issue after the date of this prospectus under the purchase agreement assuming the sale of $6.25 million of common stock at a price of $5.12 per share, the minimum price at which shares may be sold under the purchase agreement. The actual number of shares to be issued under the purchase agreement will depend on the market price of our common stock as calculated under the purchase agreement at the time of each drawdown and the dollar amount of each drawdown.
Use of proceeds	We will not receive any proceeds from the sale of shares in this offering.
American Stock Exchange symbol	IDP

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RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties described below in addition to the other information included or incorporated by reference in this prospectus, including the financial statements and related notes included in our Annual Report on Form 10-K for the year ended December 31, 2005 and our Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, each of which is incorporated by reference herein, before purchasing our common stock. If any of the following risks actually occurs, our business, financial condition or results of operations would likely suffer, possibly materially. In that case, the trading price of our common stock could fall, and you may lose all or part of the money you paid to buy our common stock.

Risks Relating to Our Financial Results and Need for Financing

We have incurred substantial losses and expect to continue to incur losses. We will not be successful unless we reverse this trend.

We have incurred losses in every year since our inception, except for 2002 when our recognition of revenues under a license and collaboration agreement resulted in us reporting net income for that year. As of June 30, 2006, we had incurred operating losses of approximately $321.0 million. We expect to continue to incur substantial operating losses in future periods. These losses, among other things, have had and will continue to have an adverse effect on our stockholders equity, total assets and working capital.

We have received no revenues from the sale of drugs. To date, almost all of our revenues have been from collaborative and license agreements. We have devoted substantially all of our efforts to research and development, including clinical trials, and we have not completed development of any drugs. Because of the numerous risks and uncertainties associated with developing drugs, we are unable to predict the extent of any future losses, whether or when any of our products will become commercially available, or when we will become profitable, if at all.

We will need additional financing, which may be difficult to obtain. Our failure to obtain necessary financing or doing so on unattractive terms could adversely affect our discovery and development programs and other operations.

We will require substantial funds to conduct research and development, including preclinical testing and clinical trials of our drugs. We will also require substantial funds to conduct regulatory activities and to establish commercial manufacturing, marketing and sales capabilities. We believe that, based on our current operating plan, our existing cash, cash equivalents and short-term investments, together with $3.5 million in gross proceeds that we raised in July 2006 through the sale of 683,593 shares of common stock to the selling stockholder, will be sufficient to fund our operations through March 2007. We may require the selling stockholder to purchase from us up to a total of $6.25 million of our common stock after the date of this prospectus and on or prior to December 31, 2006. Our ability to access this purchase commitment and sell common stock to the selling stockholder is subject to the effectiveness of the registration statement of which this prospectus is a part. If we sell the full $6.25 million of common stock, we expect to have sufficient cash and investments to be able to pursue our clinical and preclinical development programs and continue operations through August 2007.

We will need to raise additional funds to operate our business beyond such time. We believe that the key factors that will affect our ability to obtain additional funding are:

- the success of our clinical and preclinical development programs;
- the receptivity of the capital markets to financings by biotechnology companies; and
- our ability to enter into strategic collaborations with biotechnology and pharmaceutical companies and the success of such collaborations.

Additional financing may not be available to us when we need it or may not be available to us on favorable terms. We could be required to seek funds through arrangements with collaborators or others that may require us to relinquish rights to some of our technologies, drug candidates or drugs which we would otherwise pursue on our own. In addition, if we raise additional funds by issuing equity securities, our then existing stockholders will experience dilution. The terms of any financing may adversely affect the holdings or the rights of existing stockholders. If we are

unable to obtain adequate funding on a timely basis or at all, we may be required to

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significantly curtail one or more of our discovery or development programs. For example, we significantly curtailed expenditures on our research and development programs during 1999 and 2000 because we did not have sufficient funds available to advance these programs at planned levels.

Risks Relating to Our Business, Strategy and Industry

We are depending heavily on the success of our lead drug candidate, IMO-2055, which is in clinical development. If we are unable to commercialize this product, or experience significant delays in doing so, our business will be materially harmed.

We are investing a significant portion of our time and financial resources in the development of our lead drug candidate, IMO-2055. We anticipate that our ability to generate product revenues will depend heavily on the successful development and commercialization of this product. The commercial success of this product will depend on several factors, including the following:

- acceptable safety profile during the trial and during commercial use;
- successful completion of clinical trials;
- receipt of marketing approvals from the U.S. Food and Drug Administration, or the FDA, and equivalent foreign regulatory authorities;
- establishing commercial manufacturing arrangements with third-party manufacturers;
- launching commercial sales of the product, whether alone or in collaboration with others; and
- acceptance of the product in the medical community and with third-party payors.

Our efforts to commercialize this product are at an early stage, as we are currently conducting a Phase 2 clinical trial in patients with metastatic or recurrent clear cell renal carcinoma. If we are not successful in commercializing this product, or are significantly delayed in doing so, our business will be materially harmed.

If our clinical trials are unsuccessful, or if they are significantly delayed, we may not be able to develop and commercialize our products.

We may not be able to successfully complete any clinical trial of a potential product within any specified time period. In some cases, we may not be able to complete the trial at all. Moreover, clinical trials may not show our potential products to be both safe and efficacious. Thus, the FDA and other regulatory authorities may not approve any of our potential products for any indication.

In order to obtain regulatory approvals for the commercial sale of our products, we will be required to complete extensive clinical trials in humans to demonstrate the safety and efficacy of our drug candidates. We may not be able to obtain authority from the FDA or other equivalent foreign regulatory agencies to complete these trials or commence and complete any other clinical trials.

The results from preclinical testing of a drug candidate that is under development may not be predictive of results that will be obtained in human clinical trials. In addition, the results of early human clinical trials may not be predictive of results that will be obtained in larger scale, advanced stage clinical trials. A failure of one or more of our clinical trials can occur at any stage of testing. Further, there is to date little data on the long-term clinical safety of our lead compounds under conditions of prolonged use in humans, or on any long-term consequences subsequent to human use. We may experience numerous unforeseen events during, or as a result of, preclinical testing and the clinical trial process that could delay or inhibit our ability to receive regulatory approval or to commercialize our products, including:

- regulators or institutional review boards may not authorize us to commence a clinical trial or conduct a clinical trial at a prospective trial site;

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our preclinical tests or clinical trials may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional preclinical testing or clinical trials or we may abandon projects that we expect may not be promising;

we might have to suspend or terminate our clinical trials if the participating patients are being exposed to unacceptable health risks;

regulators or institutional review boards may require that we hold, suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements;

the cost of our clinical trials may be greater than we currently anticipate; and

the effects of our products may not be the desired effects or may include undesirable side effects or the products may have other unexpected characteristics.

As an example, in 1997, after reviewing the results from the clinical trial of GEM91, a first generation antisense compound and our lead drug candidate at the time, we determined not to continue the development of GEM91 and suspended clinical trials of this product candidate.

The rate of completion of clinical trials is dependent in part upon the rate of enrollment of patients. We originally planned to recruit a minimum of 46 patients who had previously failed one prior therapy, who we refer to as second-line patients, into the first stage of our Phase 2 trial of IMO-2055 in renal cell carcinoma. As of October 2005, our enrollment of second-line patients was less than anticipated, whereas the enrollment of treatment-naïve patients was more than expected. As a result, the trial protocol was amended in October 2005 to accommodate statistical endpoints for both treatment-naïve and second-line patients, thus extending the completion of the trial beyond the time we expected. We are now seeking to enroll up to 92 patients in the first stage of the trial, and we plan to continue patient recruitment into the second half of 2006. Recruitment has been slower than projected because of the recent approval of the two new therapies, Sutent® and Nexavar®, for treatment of renal cell carcinoma. Patient accrual is a function of many factors, including:

the size of the patient population,

the proximity of patients to clinical sites,

the eligibility criteria for the study,

the nature of the study,

the existence of competitive clinical trials, and

the availability of alternative treatments.

Our product development costs will increase if we experience delays in our clinical trials. We do not know whether planned clinical trials will begin as planned, will need to be restructured or will be completed on schedule, if at all. Significant clinical trial delays also could allow our competitors to bring products to market before we do and impair our ability to commercialize our products.

We face substantial competition which may result in others discovering, developing or commercializing drugs before or more successfully than us.

The biotechnology industry is highly competitive and characterized by rapid and significant technological change. We face, and will continue to face, intense competition from organizations such as pharmaceutical and biotechnology companies, as well as academic and research institutions and government agencies. Some of these organizations are pursuing products based on technologies similar to our technologies. Other of these organizations have developed and are marketing products, or are pursuing other technological approaches designed to produce

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products, that are competitive with our product candidates in the therapeutic effect these competitive products have on diseases targeted by our product candidates. Our competitors may discover, develop or commercialize products or other novel technologies that are more effective, safer or less costly than any that we are developing. Our competitors may also obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours. As examples, the FDA recently approved Sutent® and Nexavar® for use in renal cell carcinoma, which is the indication for which we are evaluating IMO-2055 monotherapy in our Phase 2 trial. Two of our competitors are currently evaluating TLR9 agonists in Phase 3 clinical trials.

Many of our competitors are substantially larger than we are and have greater capital resources, research and development staffs and facilities than we have. In addition, many of our competitors are more experienced than we are in drug discovery, development and commercialization, obtaining regulatory approvals and drug manufacturing and marketing.

We anticipate that the competition with our products and technologies will be based on a number of factors including product efficacy, safety, availability and price. The timing of market introduction of our products and competitive products will also affect competition among products. We expect the relative speed with which we can develop products, complete the clinical trials and approval processes and supply commercial quantities of the products to the market to be important competitive factors. Our competitive position will also depend upon our ability to attract and retain qualified personnel, to obtain patent protection or otherwise develop proprietary products or processes and to secure sufficient capital resources for the period between technological conception and commercial sales.

Because the products that we may develop will be based on new technologies and therapeutic approaches, the market may not be receptive to these products upon their introduction.

The commercial success of any of our products for which we may obtain marketing approval from the FDA or other regulatory authorities will depend upon their acceptance by the medical community and third-party payors as clinically useful, cost-effective and safe. Many of the products that we are developing are based upon technologies or therapeutic approaches that are relatively new and unproven. The FDA has not granted marketing approval to any products based on IMO technology or TLR9 agonists, and no such products are currently being marketed. As a result, it may be more difficult for us to achieve regulatory approval or market acceptance of our products. Our efforts to educate the medical community on these potentially unique approaches may require greater resources than would be typically required for products based on conventional technologies or therapeutic approaches. The safety, efficacy, convenience and cost-effectiveness of our products as compared to competitive products will also affect market acceptance.

Competition for technical and management personnel is intense in our industry, and we may not be able to sustain our operations or grow if we are unable to attract and retain key personnel.

Our success is highly dependent on the retention of principal members of our technical and management staff, including Sudhir Agrawal and Robert Karr. Dr. Agrawal serves as our Chief Executive Officer and Chief Scientific Officer. Dr. Karr serves as our President. Dr. Agrawal has made significant contributions to the field of antisense technology, and has led the development of IMO technology. He is named as an inventor on over 230 patents and patent applications worldwide. Dr. Karr has extensive experience in the pharmaceutical industry. Drs. Agrawal and Karr provide us leadership for management, research and development activities. The loss of either Dr. Agrawal s or Dr. Karr s services would be detrimental to our ongoing scientific progress and the execution of our business plan.

We are a party to an employment agreement with Dr. Agrawal for a term ending on October 19, 2008, subject to annual renewals. This agreement may be terminated by us or Dr. Agrawal for any reason or no reason at any time upon notice to the other party. We do not carry key man life insurance for Dr. Agrawal.

We are a party to an employment agreement with Dr. Karr for a term ending on December 5, 2007, subject to annual renewals. This agreement may be terminated by us or Dr. Karr for any reason or no reason at any time upon notice to the other party. We do not carry key man life insurance for Dr. Karr.

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Our future growth will require hiring a significant number of qualified technical and management personnel. Recruiting and retaining such personnel in the future will be critical to our success. There is intense competition from other companies and research and academic institutions for qualified personnel in the areas of our activities. If we are not able to continue to attract and retain, on acceptable terms, the qualified personnel necessary for the continued development of our business, we may not be able to sustain our operations or grow.

Regulatory Risks

We may not be able to obtain marketing approval for products resulting from our development efforts.

All of the products that we are developing or may develop in the future will require additional research and development, extensive preclinical studies and clinical trials and regulatory approval prior to any commercial sales. This process is lengthy, often taking a number of years, is uncertain and is expensive. Since our inception, we have conducted clinical trials of a number of compounds. In 1997, we determined not to continue clinical development of GEM91, our lead product candidate at the time. Currently, we are conducting clinical trials of IMO-2055.

We may need to address a number of technological challenges in order to complete development of our products. Moreover, these products may not be effective in treating any disease or may prove to have undesirable or unintended side effects, unintended alteration of the immune system over time, toxicities or other characteristics that may preclude our obtaining regulatory approval or prevent or limit commercial use.

We are subject to comprehensive regulatory requirements, with which compliance is costly and time-consuming; if we fail to comply with these requirements, we could be subject to adverse consequences and penalties.

The testing, manufacturing, labeling, advertising, promotion, export and marketing of our products are subject to extensive regulation by governmental authorities in Europe, the United States and elsewhere throughout the world.

In general, submission of materials requesting permission to conduct clinical trials may not result in authorization by the FDA or any equivalent foreign regulatory agency to commence clinical trials. Further, permission to continue ongoing trials may be withdrawn by the FDA or other regulatory agency at any time after initiation, based on new information available after the initial authorization to commence clinical trials. In addition, submission of an application for marketing approval to the relevant regulatory agency following completion of clinical trials may not result in the regulatory agency approving the application if applicable regulatory criteria are not satisfied, and may result in the regulatory agency requiring additional testing or information.

Any regulatory approval of a product may contain limitations on the indicated uses for which the product may be marketed or requirements for costly post-marketing testing and surveillance to monitor the safety or efficacy of the product. Any product for which we obtain marketing approval, along with the facilities at which the product is manufactured, any post-approval clinical data and any advertising and promotional activities for the product will be subject to continual review and periodic inspections by the FDA and other regulatory agencies.

Both before and after approval is obtained, violations of regulatory requirements may result in:

the regulatory agency s delay in approving, or refusal to approve, an application for approval of a product;

restrictions on such products or the manufacturing of such products;

withdrawal of the products from the market;

warning letters;

voluntary or mandatory recall;

fines;

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suspension or withdrawal of regulatory approvals;

product seizure;

refusal to permit the import or export of our products;

injunctions or the imposition of civil penalties; and

criminal penalties.

We have only limited experience in regulatory affairs and our products are based on new technologies; these factors may affect our ability or the time we require to obtain necessary regulatory approvals.

We have only limited experience in filing the applications necessary to gain regulatory approvals. Moreover, the products that result from our research and development programs will likely be based on new technologies and new therapeutic approaches that have not been extensively tested in humans. The regulatory requirements governing these types of products may be more rigorous than for conventional drugs. As a result, we may experience a longer regulatory process in connection with obtaining regulatory approvals of any product that we develop.

Risks Relating to Collaborators

We need to establish collaborative relationships in order to succeed.

An important element of our business strategy includes entering into collaborative relationships for the development and commercialization of products based on our discoveries. We face significant competition in seeking appropriate collaborators. Moreover, these arrangements are complex to negotiate and time-consuming to document. We may not be successful in our efforts to establish collaborative relationships or other alternative arrangements.

The success of collaboration arrangements will depend heavily on the efforts and activities of our collaborators. Our collaborators will have significant discretion in determining the efforts and resources that they will apply to these collaborations. The risks that we face in connection with these collaborations include the following:

disputes may arise in the future with respect to the ownership of rights to technology developed with collaborators;

disagreements with collaborators could delay or terminate the research, development or commercialization of products, or result in litigation or arbitration;

we may have difficulty enforcing the contracts if one of our collaborators fails to perform;

our collaborators may terminate their collaborations with us, which could make it difficult for us to attract new collaborators or adversely affect the perception of us in the business or financial communities;

collaborators have considerable discretion in electing whether to pursue the development of any additional drugs and may pursue technologies or products either on their own or in collaboration with our competitors that are similar to or competitive with our technologies or products that are the subject of the collaboration with us; and

our collaborators may change the focus of their development and commercialization efforts. Pharmaceutical and biotechnology companies historically have re-evaluated their priorities following mergers and consolidations, which have been common in recent years in these industries. The ability of our products to reach their potential could be limited if our collaborators decrease or fail to increase spending relating to such products.

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Given these risks, it is possible that any collaborative arrangements into which we enter may not be successful. In May 2005, we entered into collaborative arrangements with Novartis involving our IMO technology for application in asthma and allergies. Previous collaborative arrangements to which we were a party with F. Hoffmann-La Roche and G.D. Searle & Co., involving our antisense technology, were terminated prior to the development of any product. The failure of any of our collaborative relationships could delay our drug development or impair commercialization of our products.

Risks Relating to Intellectual Property

If we are unable to obtain patent protection for our discoveries, the value of our technology and products will be adversely affected.

Our patent positions, and those of other drug discovery companies, are generally uncertain and involve complex legal, scientific and factual questions.

Our ability to develop and commercialize drugs depends in significant part on our ability to:

obtain patents;

obtain licenses to the proprietary rights of others on commercially reasonable terms;

operate without infringing upon the proprietary rights of others;

prevent others from infringing on our proprietary rights; and

protect trade secrets.

We do not know whether any of our patent applications or those patent applications that we license will result in the issuance of any patents. Our issued patents and those that may issue in the future, or those licensed to us, may be challenged, invalidated or circumvented, and the rights granted thereunder may not provide us proprietary protection or competitive advantages against competitors with similar technology. Furthermore, our competitors may independently develop similar technologies or duplicate any technology developed by us. Because of the extensive time required for development, testing and regulatory review of a potential product, it is possible that, before any of our products can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thus reducing any advantage of the patent.

Because patent applications in the United States and many foreign jurisdictions are typically not published until 18 months after filing, or in some cases not at all, and because publications of discoveries in the scientific literature often lag behind actual discoveries, neither we nor our licensors can be certain that we or they were the first to make the inventions claimed in issued patents or pending patent applications, or that we or they were the first to file for protection of the inventions set forth in these patent applications.

Third parties may own or control patents or patent applications and require us to seek licenses, which could increase our development and commercialization costs, or prevent us from developing or marketing products.

We may not have rights under some patents or patent applications related to our products. Third parties may own or control these patents and patent applications in the United States and abroad. Therefore, in some cases, to develop, manufacture, sell or import some of our products, we or our collaborators may choose to seek, or be required to seek, licenses under third-party patents issued in the United States and abroad or under patents that might issue from United States and foreign patent applications. In such an event, we would be required to pay license fees or royalties or both to the licensor. If licenses are not available to us on acceptable terms, we or our collaborators may not be able to develop, manufacture, sell or import these products.

We may lose our rights to patents, patent applications or technologies of third parties if our licenses from these third parties are terminated. In such an event, we might not be able to develop or commercialize products covered by the licenses.

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We are party to six license agreements in the field of antisense technology under which we have acquired rights to patents, patent applications and technology of third parties. Under these licenses we are obligated to pay royalties on net sales by us of products or processes covered by a valid claim of a patent or patent application licensed to us. We also are required in some cases to pay a specified percentage of any sublicense income that we may receive. These licenses impose various commercialization, sublicensing, insurance and other obligations on us. Our failure to comply with these requirements could result in termination of the licenses. These licenses generally will otherwise remain in effect until the expiration of all valid claims of the patents covered by such licenses or upon earlier termination by the parties. The issued patents covered by these licenses expire at various dates ranging from 2006 to 2022. If one or more of these licenses is terminated, we may be delayed in our efforts, or be unable, to develop and market the products that are covered by the applicable license or licenses.

We may become involved in expensive patent litigation or other proceedings, which could result in our incurring substantial costs and expenses or substantial liability for damages or require us to stop our development and commercialization efforts.

There has been substantial litigation and other proceedings regarding patent and other intellectual property rights in the biotechnology industry. We may become a party to various types of patent litigation or other proceedings regarding intellectual property rights from time to time even under circumstances in which we are not practicing and do not intend to practice any of the intellectual property involved in the proceedings. For instance, in 2002, 2003, and 2005, we became involved in two interference proceedings declared by the United States Patent and Trademark Office, or USPTO, for certain of our antisense and ribozyme patents. All of these interferences have since been resolved. We are neither practicing nor intending to practice the intellectual property that is associated with any of these interference proceedings.

The cost to us of any patent litigation or other proceeding, including the interferences referred to above, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the cost of such litigation or proceedings more effectively than we can because of their substantially greater financial resources. If any patent litigation or other proceeding is resolved against us, we or our collaborators may be enjoined from developing, manufacturing, selling or importing our drugs without a license from the other party and we may be held liable for significant damages. We may not be able to obtain any required license on commercially acceptable terms or at all.

Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. Patent litigation and other proceedings may also absorb significant management time.

Risks Relating to Product Manufacturing, Marketing and Sales and Reliance on Third Parties

Because we have limited manufacturing experience, we are dependent on third-party manufacturers to manufacture products for us. If we cannot rely on third-party manufacturers, we will be required to incur significant costs and devote significant efforts to establish our own manufacturing facilities and capabilities.

We have limited manufacturing experience and no commercial scale manufacturing capabilities. In order to continue to develop our products, apply for regulatory approvals and ultimately commercialize products, we need to develop, contract for or otherwise arrange for the necessary manufacturing capabilities.

We currently rely upon third parties to produce material for preclinical and clinical testing purposes and expect to continue to do so in the future. We also expect to rely upon third parties to produce materials that may be required for the commercial production of our products.

There are a limited number of manufacturers that operate under the FDA s current good manufacturing practices regulations capable of manufacturing our products. As a result, we may have difficulty finding manufacturers for our products with adequate capacity for our needs. If we are unable to arrange for third-party manufacturing of our products on a timely basis, or to do so on commercially reasonable terms, we may not be able to complete development of our products or market them.

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Reliance on third-party manufacturers entails risks to which we would not be subject if we manufactured products ourselves, including:

- reliance on the third party for regulatory compliance and quality assurance,
- the possibility of breach of the manufacturing agreement by the third party because of factors beyond our control,
- the possibility of termination or nonrenewal of the agreement by the third party, based on its own business priorities, at a time that is costly or inconvenient for us,
- the potential that any such third-party manufacturer will develop know-how owned by such third party in connection with the production of our products that is necessary for the manufacture of our products, and
- reliance upon third-party manufacturers to assist us in preventing inadvertent disclosure or theft of our proprietary knowledge.

We purchased oligonucleotides for preclinical and clinical testing from Avecia Biotechnology at a preferential price under a supply agreement, which expired in March 2004. We have continued to purchase all of the oligonucleotides we are using in our ongoing clinical trials and preclinical testing from Avecia. The terms of the agreement have been extended until such time as a new agreement is negotiated. If Avecia determines not to accept any purchase order for oligonucleotides or we are unable to enter into a new manufacturing arrangement with Avecia or a new contract manufacturer on a timely basis or at all, our ability to supply the product needed for our clinical trials could be materially impaired. The services of multiple third-party manufacturers are utilized to accomplish the final portion of the manufacturing process.

We have no experience selling, marketing or distributing products and no internal capability to do so.

If we receive regulatory approval to commence commercial sales of any of our products, we will face competition with respect to commercial sales, marketing and distribution. These are areas in which we have no experience. To market any of our products directly, we would need to develop a marketing and sales force with technical expertise and with supporting distribution capability. In particular, we would need to recruit a large number of experienced marketing and sales personnel. Alternatively, we could engage a pharmaceutical or other healthcare company with an existing distribution system and direct sales force to assist us. However, to the extent we entered into such arrangements, we would be dependent on the efforts of third parties. If we are unable to establish sales and distribution capabilities, whether internally or in reliance on third parties, our business would suffer materially.

If third parties on whom we rely for clinical trials do not perform as contractually required or as we expect, we may not be able to obtain regulatory approval for or commercialize our products and our business may suffer.

We do not have the ability to independently conduct the clinical trials required to obtain regulatory approval for our products. We depend on independent clinical investigators, contract research organizations and other third-party service providers in the conduct of the clinical trials of our products and expect to continue to do so. For example, we have contracted with PAREXEL International to manage our Phase 2 clinical trial of IMO-2055 in renal cell carcinoma. We rely heavily on these parties for successful execution of our clinical trials, but do not control many aspects of their activities. We are responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with standards, commonly referred to as good clinical practices, for conducting, recording and reporting clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. Our reliance on third parties that we do not control does not relieve us of these responsibilities and requirements. Third parties may not complete activities on schedule or may not conduct our clinical trials in accordance with regulatory requirements or our stated protocols. The failure of these third parties to carry out their obligations could delay or prevent the development, approval and commercialization of our products. If we seek to conduct any of these activities ourselves in the future, we will need to recruit appropriately trained personnel and add to our infrastructure.

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If we are unable to obtain adequate reimbursement from third-party payors for any products that we may develop or acceptable prices for those products, our revenues and prospects for profitability will suffer.

Most patients will rely on Medicare and Medicaid, private health insurers and other third-party payors to pay for their medical needs, including any drugs we may market. If third-party payors do not provide adequate coverage or reimbursement for any products that we may develop, our revenues and prospects for profitability will suffer. Congress recently enacted a limited prescription drug benefit for Medicare recipients in the Medicare Prescription Drug and Modernization Act of 2003. While the program established by this statute may increase demand for our products, if we participate in this program, our prices will be negotiated with drug procurement organizations for Medicare beneficiaries and are likely to be lower than we might otherwise obtain. Non-Medicare third-party drug procurement organizations may also base the price they are willing to pay on the rate paid by drug procurement organizations for Medicare beneficiaries.

A primary trend in the United States healthcare industry is toward cost containment. In addition, in some foreign countries, particularly the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take six to twelve months or longer after the receipt of regulatory marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost effectiveness of our product candidates or products to other available therapies. The conduct of such a clinical trial could be expensive and result in delays in commercialization of our products.

Third-party payors are challenging the prices charged for medical products and services, and many third-party payors limit reimbursement for newly-approved healthcare products. In particular, third-party payors may limit the indications for which they will reimburse patients who use any products that we may develop. Cost control initiatives could decrease the price we might establish for products that we may develop, which would result in lower product revenues to us.

We face a risk of product liability claims and may not be able to obtain insurance.

Our business exposes us to the risk of product liability claims that is inherent in the manufacturing, testing and marketing of human therapeutic drugs. Although we have product liability and clinical trial liability insurance that we believe is adequate, this insurance is subject to deductibles and coverage limitations. We may not be able to obtain or maintain adequate protection against potential liabilities. If we are unable to obtain insurance at acceptable cost or otherwise protect against potential product liability claims, we will be exposed to significant liabilities, which may materially and adversely affect our business and financial position. These liabilities could prevent or interfere with our commercialization efforts.

Risks Relating to an Investment in Our Common Stock

Our corporate governance structure, including provisions in our certificate of incorporation, our by-laws, our stockholder rights plan and Delaware law, may prevent a change in control or management that stockholders may consider desirable.

Section 203 of the Delaware General Corporation Law and our certificate of incorporation, by-laws and stockholder rights plan contain provisions that might enable our management to resist a takeover of our company or discourage a third party from attempting to take over our company. These provisions include:

- a classified board of directors;
- limitations on the removal of directors;
- limitations on stockholder proposals at meetings of stockholders;
- the inability of stockholders to act by written consent or to call special meetings; and

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the ability of our board of directors to designate the terms of and issue new series of preferred stock without stockholder approval.

These provisions could have the effect of delaying, deferring, or preventing a change in control of us or a change in our management that stockholders may consider favorable or beneficial. These provisions could also discourage proxy contests and make it more difficult for you and other stockholders to elect directors and take other corporate actions. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock.

Our stock price has been and may in the future be extremely volatile. In addition, because an active trading market for our common stock has not developed, our investors ability to trade our common stock may be limited. As a result, investors may lose all or a significant portion of their investment.

Our stock price has been volatile. During the period from January 1, 2005 to June 30, 2006, the closing sales price of our common stock, as adjusted to reflect the one-for-eight split of our common stock effected on June 29, 2006, ranged from a high of $6.48 per share to a low of $2.88 per share. The stock market has also experienced significant price and volume fluctuations, and the market prices of biotechnology companies in particular have been highly volatile, often for reasons that have been unrelated to the operating performance of particular companies. The market price for our common stock may be influenced by many factors, including:

results of clinical trials of our product candidates or those of our competitors;

the regulatory status of our product candidates;

failure of any of our product candidates, if approved, to achieve commercial success;

the success of competitive products or technologies;

regulatory developments in the United States and foreign countries;

developments or disputes concerning patents or other proprietary rights;

the departure of key personnel;

variations in our financial results or those of companies that are perceived to be similar to us;

our cash resources;

the terms of any financing conducted by us;

changes in the structure of healthcare payment systems;

market conditions in the pharmaceutical and biotechnology sectors and issuance of new or changed securities analysts reports or recommendations; and

general economic, industry and market conditions.

In addition, our common stock has historically been traded at low volume levels and may continue to trade at low volume levels. As a result, any large purchase or sale of our common stock could have a significant impact on the price of our common stock and it may be difficult for investors to sell our common stock in the market without depressing the market price for the common stock or at all.

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As a result of the foregoing, investors may not be able to resell their shares at or above the price they paid for such shares. Investors in our common stock must be willing to bear the risk of fluctuations in the price of our common stock and the risk that the value of their investment in our stock could decline.

We may be unable to repay our 4% convertible subordinated notes when due or to repurchase the convertible subordinated notes if we are required to do so under the terms of our agreement with the holders of the 4% convertible subordinated notes.

In May 2005, we sold approximately $5.0 million in principal amount of 4% convertible subordinated notes. On April 30, 2008, the entire outstanding principal amount of our 4% convertible subordinated notes will become due and payable, unless the notes are converted to common stock prior to expiration. In addition, we may be required to redeem all or part of the convertible subordinated notes prior to the final maturity date if specified events occur. We may not have sufficient funds or may be unable to arrange for additional financing to pay the amount due under the convertible subordinated notes at maturity or to pay the price to repurchase the convertible subordinated notes. Any future borrowing arrangements or debt agreements to which we may become a party may restrict or prohibit us from repaying or repurchasing the convertible subordinated notes. If we are prohibited from repaying or repurchasing the convertible subordinated notes, we could try to obtain the consent of lenders under those arrangements, or we could attempt to refinance the indebtedness that contains the restrictions. If we could not obtain the necessary consents or refinance the indebtedness, we would be unable to repay or repurchase the convertible subordinated notes. Any such failure would constitute an event of default under the agreement with the holders of the 4% convertible subordinated notes, which could, in turn, constitute a default under the terms of any future indebtedness.

You may suffer additional dilution if we issue additional shares to the selling stockholder under the purchase agreement with the selling stockholder.

Under the common stock purchase agreement we entered into with the selling stockholder in March 2006, we may require the selling stockholder to purchase up to a total of $6.25 million of our common stock after the date of this prospectus and on or prior to December 31, 2006 in up to two drawdowns made by us, at our discretion. In each drawdown, the shares of common stock will be sold at a price equal to 80% of the volume weighted average of the closing prices of the common stock on the five trading days preceding the drawdown notice, but such purchase price in no event will be less than a floor price of $5.12 per share. Based on this floor price, we may issue up to a maximum of 1,220,703 shares of common stock. We are not obligated to sell any of this common stock to the selling stockholder and there are no minimum commitments or minimum use penalties. If we issue shares of our common stock to the selling stockholder pursuant to the purchase agreement, our then existing stockholders will experience dilution.

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SPECIAL NOTE REGARDING FORWARD-LOOKING INFORMATION

This prospectus and the documents we incorporate by reference contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements, other than statements of historical facts, included or incorporated in this prospectus regarding our strategy, future operations, financial position, future revenues, projected costs, prospects, plans and objectives of management are forward-looking statements. The words anticipates, believes, estimates, expects, intends, may, plans, would and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. We have included important factors in the cautionary statements included in this prospectus, particularly under the heading Risk Factors, that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. In addition, any forward-looking statements represent our estimates only as of the date this prospectus is filed with the Securities Exchange Commission, or the SEC, and should not be relied upon as representing our estimates as of any subsequent date. We do not assume any obligation to update any forward-looking statements.

USE OF PROCEEDS

We will not receive any proceeds from the sale of the shares of common stock offered pursuant to this prospectus. The selling stockholder will receive all of the proceeds from the sale of the shares of common stock offered by this prospectus. For information about the selling stockholder, see Selling Stockholder.

The selling stockholder will pay any underwriting discounts and commissions and expenses incurred by the selling stockholder for brokerage, accounting, tax or legal services or any other expenses incurred by the selling stockholder in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including all registration and filing fees and fees and expenses of our counsel and our accountants.

SELLING STOCKHOLDER

The shares of common stock covered by this prospectus consist of up to 1,220,703 shares of common stock issuable pursuant to the common stock purchase agreement, dated March 24, 2006, between us and the selling stockholder. Under this agreement, we may require the selling stockholder to purchase from us up to a total of $6.25 million of our common stock after the date of this prospectus and on or prior to December 31, 2006 in up to two drawdowns made by us, at our discretion.

The table below sets forth, to our knowledge, information about the selling stockholder as of July 31, 2006.

We do not know when or in what amounts the selling stockholder may offer shares for sale. The selling stockholder may sell any or all of the shares offered by this prospectus. Because the selling stockholder may offer all or some of the shares pursuant to this offering, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of shares that will be held by the selling stockholder after completion of this offering. For purposes of this table, however, we have assumed that, after completion of this offering, none of the shares covered by this prospectus will be held by the selling stockholder.

Beneficial ownership is determined in accordance with the rules of the SEC, and includes voting or investment power with respect to shares. Notwithstanding the foregoing, all of the shares of common stock issuable to the selling stockholder under the purchase agreement are treated as being beneficially owned by the selling stockholder. Unless otherwise indicated below, to our knowledge, the person named in the table has sole voting and investment power with respect to the shares of common stock beneficially owned by such person, except to the extent authority is shared by spouses under applicable law. The inclusion of any shares in this table does not constitute an admission of beneficial ownership for the person named below.

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Name of Selling Stockholder (1)	Shares of Common Stock Beneficially Owned Prior to Offering		Number of Shares of Common Stock Being Offered	Shares of Common Stock to be Beneficially Owned After Offering	
	Number	Percentage		Number	Percentage
Biotech Shares Ltd.	2,666,014(2)(3)	13.7%	1,220,703(3)	1,445,311(2)	7.5%

(1) The term selling stockholder includes donees, pledgees, transferees or other successors-in-interest selling shares received after the date of this prospectus from the selling stockholder as a gift, pledge, partnership distribution or other non-sale related transfer.

(2) Includes 761,718 shares of common stock issuable upon the exercise of warrants held by the selling stockholder.

(3) Includes 1,220,703 shares of common stock that we may require the selling stockholder to purchase after the date of this prospectus and on or prior to December 31, 2006 under the purchase agreement. The 1,220,703 shares of common stock represent the maximum number of shares issuable under the purchase agreement assuming

the sale of $6.25 million of common stock at a price of $5.12 per share, the minimum price at which shares may be sold under the purchase agreement. The actual number of shares to be issued under the purchase agreement will depend on the market price of our common stock as calculated under the purchase agreement at the time of each drawdown and the dollar amount of each drawdown.

Relationship with Selling Stockholder

The selling stockholder has not had and does not have any position, office or other material relationship with us or our affiliates.

DESCRIPTION OF COMMON STOCK PURCHASE AGREEMENT

On March 24, 2006, we entered into a common stock purchase agreement with the selling stockholder. Under this purchase agreement, we secured a commitment from the selling stockholder to purchase from us up to a total of $9.75 million of our common stock during the period from June 24, 2006 through December 31, 2006 in up to three drawdowns made by us, at our discretion. In July 2006, we sold 683,593 shares of common stock to the selling stockholder for an aggregate purchase price of $3.5 million pursuant to the purchase agreement. As a result, we are entitled to sell up to $6.25 million of our common stock to the selling stockholder after the date of this prospectus and on or prior to December 31, 2006. In each drawdown, the shares of common stock will be sold at a price equal to 80% of the volume weighted average of the closing prices of our common stock on the five trading days preceding the drawdown notice, but such purchase price in no event will be less than a floor price of $5.12 per share. Based on this floor price, the maximum number of shares of common stock that we may issue under the purchase agreement after the date of this prospectus is 1,220,703 shares. We are not obligated to sell any of these shares of common stock and there are no minimum commitments or minimum use penalties. The purchase agreement does not contain any restrictions on our operating activities, automatic pricing resets or minimum market volume restrictions. Our ability to make the two drawdowns is conditioned upon the effectiveness of a registration statement covering the resale of the shares to be issued under the purchase agreement. There are no other conditions to drawdowns that have not been satisfied. No drawdown may occur within 45 days of any other drawdown, and no single drawdown may exceed $4.0 million. The selling stockholder s commitment to purchase our common stock is supported by a letter of credit confirmed by JPMorgan Chase Bank, N.A.

PRICE RANGE OF COMMON STOCK AND DIVIDEND POLICY

The following table sets forth, for the periods indicated, the high and low sales prices per share of our common stock during each of the quarters set forth below as reported on the American Stock Exchange. These prices reflect inter-dealer prices without retail mark-up, mark-down or commission and may not necessarily represent actual transactions. On June 29, 2006, we effected a one-for-eight reverse stock split of our issued and outstanding common stock. The per share information in the following table reflects this reverse stock split.

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	High	Low
2006		
First Quarter	$ 5.52	$4.00
Second Quarter	5.44	1.60
Third Quarter (through August 11, 2006)	4.87	2.33
2005		
First Quarter	$ 9.20	$3.60
Second Quarter	6.64	4.08
Third Quarter	5.76	3.44
Fourth Quarter	6.72	4.00
2004		
First Quarter	$12.08	7.36
Second Quarter	8.80	4.08
Third Quarter	5.52	2.88
Fourth Quarter	5.44	3.20

We have never declared or paid cash dividends on our common stock, and we do not expect to pay any cash dividends on our common stock in the foreseeable future.

CAPITALIZATION

The following table sets forth our capitalization as of June 30, 2006:

- on an actual basis;
- on a pro forma basis reflecting the sale of 683,593 shares of common stock to the selling stockholder for an aggregate purchase price of $3.5 million in July 2006 and the $3.5 million in gross proceeds from such sale; and
- on a pro forma as adjusted basis reflecting (a) the sale of 683,593 shares of common stock to the selling stockholder for an aggregate purchase price of $3.5 million in July 2006 and the $3.5 million in proceeds from such sale and (b) the sale to the selling stockholder of 1,220,703 shares of our common stock at the floor price of $5.12 per share.

	As of June 30, 2006		
	Actual	Pro Forma	Pro Forma As Adjusted
Cash and investments	$ 8,747,550	$ 12,247,546	$ 18,497,546
4% convertible subordinated notes payable	5,032,750	5,032,750	5,032,750
Stockholders equity:			
Preferred stock, $0.01 par value; 5,000,000 shares authorized			
Series A convertible preferred stock; 1,500,000 shares designated; 655 shares issued and outstanding, actual, pro forma and pro forma as adjusted	7	7	7
Common stock, $0.001 par value; 40,000,000 shares authorized, 16,721,124 shares issued and outstanding, actual; 17,404,717 shares issued and outstanding, pro forma; 18,625,420 shares issued	16,721	17,405	18,625

and outstanding, pro forma as adjusted			
Additional paid-in capital	321,281,281	324,780,593	331,029,373
Accumulated deficit	(320,977,951)	(320,977,951)	(320,977,951)
Accumulated other comprehensive loss	(3,977)	(3,977)	(3,977)
Total stockholders equity	316,081	3,816,077	10,066,077
Total capitalization	$ 5,348,831	$ 8,848,827	$ 15,098,827

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Each investor should read this table in conjunction with Management s Discussion and Analysis of Financial Condition and Results of Operations and the consolidated financial statements and accompanying notes included in our Annual Report on Form 10-K for the year ended December 31, 2005 and our Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, each of which is incorporated by reference herein.

This table excludes the following shares as of June 30, 2006:

- 2,533,332 shares of common stock reserved for issuance pursuant to then outstanding stock options at a weighted average exercise price of $5.72 per share;
- 992,672 shares of common stock then reserved for future awards under our stock plans;
- 4,786,878 shares of common stock then reserved for issuance pursuant to outstanding common stock purchase warrants at a weighted average exercise price of $6.26 per share;
- 655 shares of Series A convertible preferred stock, which are convertible into 1,926 shares of common stock; and
- 706,847 shares of common stock reserved for issuance upon conversion of our outstanding 4% convertible subordinated notes.

DESCRIPTION OF CAPITAL STOCK

We are authorized to issue 40,000,000 shares of common stock, $0.001 par value per share, and 5,000,000 shares of preferred stock, $0.01 par value per share, of which 1,500,000 are designated Series A convertible preferred stock and 200,000 shares are designated Series C junior participating preferred stock. As of June 30, 2006, there were 16,721,124 shares of common stock outstanding, 655 shares of Series A convertible preferred stock outstanding, no shares of Series C junior participating preferred stock outstanding and no other shares of preferred stock issued and outstanding.

The material terms and provisions of our common stock, our preferred stock, our preferred stock purchase rights and each other class of our securities that qualifies or limits our common stock, are described in our Registration Statement on Form 8-A dated December 4, 2003 which is incorporated by reference in this prospectus. For the complete terms of our common stock, preferred stock and preferred stock purchase rights, please refer to our certificate of incorporation, by-laws and stockholder rights plan that we have filed with the SEC. The terms of these securities may also be affected by the General Corporation Law of the State of Delaware.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Since January 1, 2003, we have entered into or have been engaged in the following transactions with the following directors, officers and stockholders of Idera Pharmaceuticals who beneficially owned more than 5% of our outstanding common stock at the time of these transactions, as well as affiliates or immediate family members of those directors, officers and stockholders. We believe that the terms of the transactions described below were no less favorable than we could have obtained from unaffiliated third parties.

Youssef El Zein and Affiliates

Pursuant to the Engagement Letter, dated March 24, 2006, we engaged Youssef El Zein, one of our directors, to assist us as a placement agent in securing a commitment from the selling stockholder to purchase up to a total of $9.75 million of our common stock pursuant to the purchase agreement during the period from June 24, 2006 through December 31, 2006 in up to three drawdowns made by us, at our discretion. For such services, we paid Mr. El Zein $487,500.

Mr. El Zein is a director of Pillar Investment Ltd., or Pillar, and a director of Optima Life Sciences Limited, or Optima. Pillar is the manager and investment advisor of Optima and holds all of the voting shares of Optima. In 2005, we paid $264,000 to Pillar and issued to Pillar warrants to purchase 70,684 shares of common stock at an exercise price of $7.12 per share as placement agent fees in connection with our private placement of 4% convertible

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subordinated notes that occurred in May 2005. Optima purchased $3,102,750 of the 4% convertible subordinated notes issued in the private placement.

In 2004, we paid $281,000 to Pillar and issued to Pillar warrants to purchase 54,065 shares of common stock at an exercise price of $5.36 per share as placement agent fees in connection with our private placement of shares of common stock and warrants to purchase shares of common stock that occurred in August 2004. Optima purchased 346,012 shares of common stock and warrants to purchase 69,202 shares of common stock in the August 2004 private placement.

In 2003, we paid $195,000 to Pillar for consulting services relating to international investor relations and $100,000 to Pillar for consulting services related to the repurchase of our common stock from certain stockholders. In addition, we paid $255,000 to Pillar and issued to Pillar warrants to purchase 73,463 shares of common stock at an exercise price of $8.00 per share as placement agent fees in connection with our private placement of shares of common stock and warrants to purchase shares of common stock that occurred in August 2003. Optima purchased 687,547 shares of common stock and warrants to purchase 206,264 shares of common stock in our August 2003 private placement.

Conversion of Series A Convertible Preferred Stock

At a special meeting of stockholders held on December 4, 2003, holders of our common stock and Series A convertible preferred stock approved amendments to our certificate of incorporation that reduced the liquidation preference and annual dividend rate on our Series A convertible preferred stock. The amendments also provided that during a 60-day period that ended on February 2, 2004, shares of our Series A convertible preferred stock could be converted into a number of shares of common stock that was 25% greater than the number of shares that would otherwise be issuable upon conversion of the Series A convertible preferred stock. During the 60-day period, holders of 722,092 shares of our Series A convertible preferred stock, or 99.9% of the Series A convertible preferred stock outstanding, converted their shares into 2,654,753 shares of common stock, including the following stockholders who beneficially owned more than 5% of the outstanding shares of common stock on an as-converted basis at the time of the conversion:

Holder	Shares of Series A Preferred Stock	Shares of Common Stock
Founders Financial Group, LP	96,207	353,702
General Motors Employees Domestic Group Trust	152,520	560,735
Guardian Life Insurance Company of America	145,451	534,746

TMC Development

On September 1, 2002, we entered into an agreement with TMC Development to provide consulting, advisory and related services to us. Dr. Marcel, who served as our director from December 2002 through February 2004, was the President and principal stockholder of TMC Development. We paid TMC Development $45,000 in 2003 and $15,875 in 2004 for consulting services provided to us in 2003 under the agreement.

Great Point Partners LLC

Biomedical Value Fund, LP and Biomedical Offshore Value Fund Ltd., each of which is an affiliate of Great Point Partners, LLC, purchased, in the aggregate, 216,262 shares of common stock and warrants to purchase 43,252 shares of common stock for the purchase price of $1,000,000 in our August 2004 private placement under the same terms as the other investors. Great Point beneficially owned over 5% of the outstanding common stock prior to the August 2004 private placement.

August 2003 Private Placement

Two of our directors, Drs. Wyngaarden and Zamecnik participated in our August 2003 private placement under the same terms as other investors. Dr. Wyngaarden purchased, at a cost of $25,000, 4,280 shares of common

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stock and warrants to purchase 1,284 shares of common stock with an exercise price of $8.00 per share. Dr. Zamecnik purchased, at a cost of $50,000, 8,561 shares of common stock and warrants to purchase 2,568 shares of common stock with an exercise price of $8.00 per share.

PLAN OF DISTRIBUTION

The selling stockholder may offer and sell the shares covered by this prospectus from time to time. The term selling stockholder includes donees, pledgees, transferees or other successors-in-interest selling shares received after the date of this prospectus from the selling stockholder as a gift, pledge, partnership distribution or other transfer. The selling stockholder will act independently of us in making decisions with respect to the timing, manner and size of each sale. Such sales may be made on one or more exchanges or in the over-the-counter market or otherwise, at prices and under terms then prevailing or at prices related to the then current market price or in negotiated transactions. The selling stockholder may sell its shares by one or more of, or a combination of, the following methods:

- purchases by a broker-dealer as principal and resale by such broker-dealer for its own account pursuant to this prospectus;
- ordinary brokerage transactions and transactions in which the broker solicits purchasers;
- block trades in which the broker-dealer so engaged will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- an over-the-counter distribution;
- in privately negotiated transactions; and
- in options transactions.

In addition, the selling stockholder may sell any shares that qualify for sale pursuant to Rule 144 under Rule 144 rather than pursuant to this prospectus.

In connection with distributions of the shares or otherwise, the selling stockholder may enter into hedging transactions with broker-dealers or other financial institutions. In connection with such transactions, broker-dealers or other financial institutions may engage in short sales of the common stock in the course of hedging the positions they assume with the selling stockholder. The selling stockholder may also sell the common stock short and redeliver the shares to close out such short positions. The selling stockholder may also enter into option or other transactions with broker-dealers or other financial institutions which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus, as supplemented or amended to reflect such transaction. The selling stockholder may also pledge shares to a broker-dealer or other financial institution, and, upon a default, such broker-dealer or other financial institution, may effect sales of the pledged shares pursuant to this prospectus, as supplemented or amended to reflect such transaction. In effecting sales, broker-dealers or agents engaged by the selling stockholder may arrange for other broker-dealers to participate. Broker-dealers or agents may receive commissions, discounts or concessions from the selling stockholder in amounts to be negotiated immediately prior to the sale.

In offering the shares covered by this prospectus, the selling stockholder and any broker-dealers who execute sales for the selling stockholder are underwriters within the meaning of the Securities Act in connection with such sales. Any profits realized by the selling stockholder and the compensation of any broker-dealers will be deemed to be underwriting discounts and commissions.

In order to comply with the securities laws of some states, if applicable, the shares must be sold in those states only through registered or licensed brokers or dealers. In addition, some states may restrict the selling stockholder from selling its shares unless the shares have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and is complied with.

We have advised the selling stockholder that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholder and its affiliates. In

addition, we will make copies of this prospectus available to the selling stockholder for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholder may indemnify any

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broker-dealer that participates in transactions involving the sale of the shares against some liabilities, including liabilities arising under the Securities Act.

At the time a particular offer of shares is made, if required, we will distribute a prospectus supplement that will set forth the number of shares being offered and the terms of this offering, including the name of any underwriter, dealer or agent, the purchase price paid by any underwriter, any discount, commission and other item constituting compensation, any discount, commission or concession allowed or re-allowed or paid to any dealer, and the proposed selling price to the public. In addition, we may amend or supplement this prospectus from time to time to describe a specific plan of distribution.

We have agreed to indemnify the selling stockholder against some liabilities, including some liabilities under the Securities Act.

We have agreed with the selling stockholder to use our best efforts to cause the registration statement of which this prospectus constitutes a part to remain effective until the earlier of:

- such time as all of the shares covered by this prospectus and held by the selling stockholder are eligible to be sold under Rule 144 of the Securities Act without restriction by the volume limitations of Rule 144(e) of the Securities Act; and

- such time as all of the shares covered by this prospectus have been sold pursuant to the registration statement of which this prospectus constitutes a part, to or through a broker or dealer or underwriter in a public securities transaction or in a transaction exempt from the registration and prospectus delivery requirements of the Securities Act such that all transfer restrictions and restrictive legends, if any, are removed upon the consummation of such sale.

LEGAL MATTERS

The validity of the shares offered by this prospectus has been passed upon by Wilmer Cutler Pickering Hale and Dorr LLP.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2005, as set forth in their report, which is incorporated by reference in this registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP s report, given on their authority as experts in accounting and auditing.

MATERIAL CHANGES

On June 29, 2006, we effected a one-for-eight reverse stock split of our issued and outstanding common stock. The following selected financial data reflects this reverse stock split.

	Year Ended		
	Dec. 31 2005	Dec. 31 2004	Dec. 31 2003
	(In thousands, except per share data)		
Basic and diluted net (loss) per common share from:			
Net (loss) per share	$ (0.99)	$ (1.03)	$ (2.70)
Accretion of preferred stock dividends		(0.22)	(0.86)
Net (loss) per share applicable to common stockholders	$ (0.99)	$ (1.25)	$ (3.56)
Shares used in computing basic and diluted net (loss) per common share	13,886	12,364	6,382

Common shares outstanding end of period	13,928	13,866	8,810
Stock options outstanding end of period	2,548	2,070	1,840
Stock purchase warrants outstanding end of year	2,010	1,940	1,295
Number of common shares issuable upon conversion of 4% notes end of period	707		
Number of common shares that preferred stock can be converted into end of period	2	2	1,439

WHERE YOU CAN FIND MORE INFORMATION

We file reports, proxy statements and other documents with the SEC. You may read and copy any document we file at the SEC s public reference room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You should call 1-800-SEC-0330 for more information on the public reference room. Our SEC filings are also available to you on the SEC s Internet site at http://www.sec.gov.

This prospectus is part of a registration statement that we filed with the SEC. The registration statement contains more information than this prospectus regarding us and our common stock, including certain exhibits and schedules. You can obtain a copy of the registration statement from the SEC at the address listed above or from the SEC s Internet site.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC requires us to incorporate into this prospectus information that we file with the SEC in other documents. This means that we can disclose important information to you by referring to other documents that contain that information. The information incorporated by reference is considered to be part of this prospectus. Information contained in this prospectus automatically updates and supersedes previously filed information. We incorporate by reference the documents listed below.

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(1) Our Annual Report on Form 10-K for the year ended December 31, 2005;

(2) Our Current Report on Form 8-K dated March 29, 2006;

(3) Our Current Report on Form 8-K dated April 19, 2006;

(4) Our Current Report on Form 8-K dated June 8, 2006;

(5) Our Current Report on Form 8-K dated July 6, 2006;

(6) Our Current Report on Form 8-K dated July 14, 2006;

(7) Our Quarterly Report of Form 10-Q for the quarter ended March 31, 2006;

(8) Our Quarterly Report of Form 10-Q for the quarter ended June 30, 2006;

(9) Our Definitive Proxy Statement on Schedule 14A dated May 1, 2006; and

(10) The description of our capital stock contained in our Registration Statement on Form 8-A dated December 4, 2003, including any amendments or reports filed for the purpose of updating that description.

These documents may be accessed on our website at http://www.iderapharma.com, or you may request a copy of these documents, which will be provided to you at no cost, by writing or telephoning us using the following contact information below. We will provide copies of the exhibits to these filings only if they are specifically incorporated by reference in these filings.

Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, Massachusetts 02139
Attention: Investor Relations
(617) 679-5500

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1,220,703 Shares
Common Stock

PROSPECTUS

, 2006

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PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth the various expenses to be incurred in connection with the sale and distribution of the securities being registered hereby (except any underwriting discounts and commissions), all of which will be borne by Idera Pharmaceuticals. All amounts shown are estimates except the SEC registration fee.

Filing Fee Securities and Exchange Commission	$ 322
Legal fees and expenses	30,000
Accounting fees and expenses	20,000
Miscellaneous expenses	27,500
Total Expenses	$ 77,822

Item 14. Indemnification of Directors and Officers.

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

Article NINTH of the Registrant s Restated Certificate of Incorporation provides that a director or officer of the Registrant (a) shall be indemnified by the Registrant against all expenses (including attorneys fees), judgments, fines and amounts paid in settlement incurred in connection with any litigation or other legal proceeding (other than an action by or in the right of the Registrant) brought against him by virtue of his position as a director or officer of the Registrant if he acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the Registrant, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful and (b) shall be indemnified by the Registrant against all expense (including attorneys fees) and amounts paid in settlement incurred in connection with any action by or in the right of the Registrant brought against him by virtue of his position as a director or officer of the Registrant if he acted in good faith and in a manner he reasonably believed to be in, or not opposed to, the best interests of the Registrant, except that no indemnification shall be made with respect to any matter as to which such person shall have been adjudged to be liable to the Registrant, unless a court determines that, despite such adjudication but in view of all of the circumstances, he is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that a director or officer has been successful, on the merits or otherwise, including, without limitation, the dismissal of an action without prejudice, he is required to be indemnified by the Registrant against all expenses (including attorneys fees) incurred in connection therewith. Expenses shall be advanced to a director or officer at his request, provided that he undertakes to repay the amount advanced if it is ultimately determined that he is not entitled to indemnification for such expenses.

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

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

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Section 145 of the Delaware General Corporation law provides that a corporation has the power to indemnify a director, officer, employee or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against amounts paid and expense incurred in connection with an action or proceeding to which he is or is threatened to be made a party by reason of such position, if such person shall have acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal proceeding, if such person had no reasonable cause to believe his conduct was unlawful; provided that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the adjudicating court determines that such indemnification is proper under the circumstances.

Idera Pharmaceuticals has obtained directors and officers insurance for the benefit of its directors and its officers.

Item 15. Recent Sales of Unregistered Securities.

On March 24, 2006, we raised $9.75 million in gross proceeds from a private financing. We sold 2,769,886 shares of our common stock and warrants to purchase 2,077,414 shares of our common stock. The warrants to purchase shares of our common stock have an exercise price of $5.20 per share and are exercisable for a five-year period beginning in September 2006. The shares of common stock and warrants to purchase shares of common stock offered and sold in the private financing were offered and sold to accredited investors 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 and in reliance on similar exemptions under applicable state laws.

On March 24, 2006, we also entered into a common stock purchase agreement, dated as of March 24, 2006, with the selling stockholder. Under this purchase agreement, in July 2006 we sold 683,593 shares of our common stock at a price of $5.12 per share to the selling stockholder in reliance on the exemptions provided by Section 4(2) of the Securities Act and Regulation S promulgated thereunder. In connection with execution of the purchase agreement, we issued to the selling stockholder warrants to purchase up to 761,718 shares of common stock at an exercise price of $5.92 per share. The warrants are exercisable for a five-year period beginning in September 2006. The warrants were issued 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 S promulgated thereunder.

On December 22, 2005, we issued 10,570 shares of common stock in lieu of $48,794 in interest due to Optima on our 4% convertible subordinated notes held by Optima. The shares were issued without registration under the Securities Act in reliance on the exemption provided by Regulation S under the Securities Act. On December 15, 2005, we issued 9,392 shares of common stock in lieu of $43,359 in interest due to holders of our 4% convertible subordinated notes. The shares were issued without registration under the Securities Act in reliance on the exemption provided by Regulation S under the Securities Act.

On May 24, 2005, we issued 4% convertible subordinated notes in the aggregate principal amount of approximately $5.0 million in a private placement. Pillar acted as the placement agent for us outside of the United States. We issued warrants to purchase 70,684 shares of our common stock at an exercise price of $7.12 per share to Pillar in connection with these services. These warrants will expire if not exercised on or prior to May 24, 2010. The 4% convertible subordinated notes were offered and sold in the private placement to non-U.S. investors without registration under the Securities Act in reliance on the exemption provided by Regulation S under the Securities Act. The warrants issued to Pillar were issued without registration under the Securities Act in reliance on the exemption provided by Regulation S under the Securities Act.

On August 27, 2004, we raised approximately $5.1 million in gross proceeds from a private financing. We sold 1,102,925 shares of our common stock and warrants to purchase 220,585 shares of our common stock. The warrants to purchase shares of our common stock have an exercise price of $5.36 per share and will expire if not exercised on or prior to August 27, 2009. Pillar acted as the placement agent for us outside of the United States. We issued warrants to purchase 54,065 shares of common stock at an exercise price of $5.36 per share to Pillar in connection with these services. These warrants will expire if not exercised on or prior to August 27, 2009. The shares of common stock and warrants to purchase common stock were offered and sold in the private placement in the United States to one institutional accredited investor without registration under the Securities Act, or the

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securities laws of certain states, in reliance on the exemptions provided by Section 4(2) of the Securities Act and Regulation D promulgated thereunder and in reliance on similar exemptions under applicable state laws, and to non-U.S. investors without registration under the Securities Act in reliance on the exemption provided by Regulation S under the Securities Act. The warrants issued to Pillar were issued without registration under the Securities Act in reliance on the exemption provided by Regulation S under the Securities Act.

In August 2003, we raised approximately $14.6 million in gross proceeds from a private financing. We sold 2,506,627 shares of our common stock and warrants to purchase 751,991 shares of our common stock. The warrants to purchase shares of our common stock have an exercise price of $8.00 per share and will expire if not exercised on or prior to August 28, 2008. In connection with the private financing, we also issued warrants to selected dealers and placement agents which assisted us with the private financing. These include warrants to purchase 307,300 shares of common stock at an exercise price of $5.84 per share and warrants to purchase 165,667 shares of common stock at an exercise price of $8.00 per share. These warrants will expire if not exercised by August 28, 2008. The shares of common stock and warrants to purchase common stock were offered and sold in the private placement in the United States to institutional accredited investors 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 and in reliance on similar exemptions under applicable state laws, and to non-U.S. investors without registration under the Securities Act in reliance on the exemption provided by Regulation S under the Securities Act. The warrants issued to selected dealers and placement agents which assisted us with the private financing were issued 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 and in reliance on similar exemptions under applicable state laws.

All of the foregoing securities are deemed restricted securities for purposes of the Securities Act. All certificates representing the issued shares of common stock described in this Item 15 included appropriate legends setting forth that the securities had not been registered and the applicable restrictions on transfer.

Item 16. Exhibits.

The exhibits listed in the Exhibit Index immediately preceding the exhibits are filed as part of this Registration Statement on Form S-1.

Item 17. Undertakings.

The undersigned Registrant hereby undertakes:

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

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933, as amended (the Securities Act);

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

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

provided, however, that paragraphs (1)(i) and (1)(ii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in periodic reports filed with or furnished to the Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the Exchange Act), that are incorporated by reference in this Registration Statement.

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

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

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

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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-1 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cambridge, commonwealth of Massachusetts, on August 14, 2006.

IDERA PHARMACEUTICALS, INC.

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

SIGNATURES AND POWER OF ATTORNEY

We, the undersigned officers and directors of Idera Pharmaceuticals, Inc., hereby severally constitute and appoint Robert G. Andersen and Sudhir Agrawal and each of them singly, our true and lawful attorneys with full power to any of them, and to each of them singly, to sign for us and in our names in the capacities indicated below the Registration Statement on Form S-1 filed herewith and any and all pre-effective and post-effective amendments to said Registration Statement and generally to do all such things in our name and behalf in our capacities as officers and directors to enable Idera Pharmaceuticals, Inc. to comply with the provisions of the Securities Act of 1933, as amended, and all requirements of the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorneys, or any of them, to said Registration Statement and any and all amendments thereto.

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

Signature	Title	Date
/s/ James B. Wyngaarden James B. Wyngaarden, M.D.	Chairman of the Board of Directors	August 14, 2006
/s/ Sudhir Agrawal Sudhir Agrawal, D. Phil.	Chief Executive Officer, Chief Scientific Officer and Director (Principal Executive Officer)	August 14, 2006
/s/ Robert W. Karr Robert W. Karr, M.D.	President and Director	August 14, 2006
/s/ Robert G. Andersen Robert G. Andersen	Chief Financial Officer, Vice President of Operations, Treasurer and Secretary (Principal Financial and Accounting Officer)	August 14, 2006
/s/ Youssef El-Zein	Director	August 14, 2006

Youssef El-Zein

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Signature	Title	Date
/s/ C. Keith Hartley C. Keith Hartley	Director	August 14, 2006
/s/ William S. Reardon William S. Reardon	Director	August 14, 2006
/s/ Alison Taunton-Rigby Alison Taunton-Rigby, Ph.D.	Director	August 14, 2006

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EXHIBIT INDEX

Exhibit Number	*Description*	Filed with this Form S-1	Incorporated by Reference		
			Form or Schedule	Filing Date with SEC	SEC File Number
3.1	Restated Certificate of Incorporation of Idera Pharmaceuticals, Inc., as amended.		10-Q	August 14, 2006	001-31918
3.2	Certificate of Ownership and Merger		8-K	September 15, 2005	001-31918
3.3	Amended and Restated Bylaws of Idera Pharmaceuticals, Inc.		S-1	November 6, 1995	33-99024
4.1	Specimen Certificate for shares of Common Stock, $.001 par value, of Idera Pharmaceuticals, Inc.		S-1	December 8, 1995	33-99024
4.2	Indenture dated as of March 26, 1997 between Forum Capital Markets LLC and Idera Pharmaceuticals, Inc.		8-K	April 14, 1997	000-27352
4.3	Rights Agreement dated December 10, 2001 by and between Idera Pharmaceuticals, Inc. and Mellon Investor Services LLC, as rights agent, as amended.		S-2	October 10, 2003	333-109630
5.1	Opinion of Wilmer Cutler Pickering Hale and Dorr LLP.	X			
10.1	License Agreement dated February 21, 1990 and restated as of September 8, 1993 between Idera Pharmaceuticals, Inc. and University of Massachusetts Medical Center.		S-1	November 6, 1995	33-99024
10.2	Patent License Agreement effective as of October 13, 1994 between Idera Pharmaceuticals, Inc. and McGill University.		S-1	November 6, 1995	33-99024
10.3	License Agreement effective as of October 25, 1995 between Idera Pharmaceuticals, Inc. and the General Hospital Corporation.		S-1	November 6, 1995	33-99024
10.4	License Agreement dated as of October 30, 1995 between Idera Pharmaceuticals, Inc. and Yoon S.		S-1	November 6, 1995	33-99024

	Cho-Chung.			
10.5	Registration Rights Agreement dated as of February 21, 1990 between Idera Pharmaceuticals, Inc., University of Massachusetts Medical Center and Paul C. Zamecnik.	S-1	November 6, 1995	33-99024
10.6	2005 Stock Incentive Plan as amended	10-Q	August 14, 2006	001-31918
10.7	1995 Stock Option Plan.	S-1	November 6, 1995	33-99024
10.8	1995 Director Stock Option Plan.	S-1	November 6, 1995	33-99024
10.9	1995 Employee Stock Purchase Plan.	S-1	November 6, 1995	33-99024
10.10	Employment Agreement dated October 19, 2005 between Idera Pharmaceuticals, Inc. and Dr. Sudhir Agrawal.	10-Q	November 9, 2005	001-31918
10.11	Amendment No. 1 to License Agreement, dated as of February 21, 1990 and restated as of September 8, 1993, by and between University of Massachusetts Medical Center and Idera Pharmaceuticals, Inc., dated as of November 26, 1996.	10-Q	August 14, 1997	000-27352
10.12	Licensing Agreement dated March 12, 1999 by and between Idera Pharmaceuticals, Inc. and Integrated DNA Technologies, Inc.	10-K	April 15, 1999	000-27352
10.13	Licensing Agreement dated September 7, 1999 by and between Idera Pharmaceuticals, Inc. and Genzyme Corporation.	10-Q	November 15, 1999	000-27352
10.14	License Agreement dated September 20, 2000 by and between Idera Pharmaceuticals and Boston Biosystems, Inc.	S-1/A	December 29, 2000	333-69649
10.15	Assignment of Coexclusive License dated September 20, 2000 by and between Idera Pharmaceuticals and the Public Health Service.	S-1/A	December 29, 2000	333-69649

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Exhibit Number	Description	Filed with this Form S-1	Incorporated by Reference		
			Form or Schedule	Filing Date with SEC	SEC File Number
10.16	Oligonucleotide Purification Patent License Agreement dated September 20, 2000 by and between Idera Pharmaceuticals and Boston Biosystems, Inc.		S-1/A	December 29, 2000	333-69649
10.17	Asset Purchase Agreement dated June 29, 2000 by and between Idera Pharmaceuticals and Boston Biosystems, Inc.		Schedule 14A	August 15, 2000	000-27352
10.18	Assignment of Patent Rights dated September 20, 2000 by and between Idera Pharmaceuticals and Boston Biosystems, Inc.		S-1/A	December 29, 2000	333-69649
10.19	PNT Monomer Patent License and Option Agreement dated September 20, 2000 by and between Idera Pharmaceuticals and Boston Biosystems, Inc.		S-1/A	December 29, 2000	333-69649
10.20	Agreement Relating to Patents Forming Part of Acquired Assets but to be Licensed Back to Idera Pharmaceuticals for the Purposes of OriGenix Agreements dated September 20, 2000 by and between Idera Pharmaceuticals and Boston Biosystems, Inc.		S-1/A	December 29, 2000	333-69649
10.21	Agreement and Mutual Release between Idera Pharmaceuticals and MethylGene, Inc. dated March 21, 2001.		10-K	April 13, 2001	000-27352
10.22	Amended and Restated 1997 Stock Incentive Plan.		10-Q	May 15, 2001	000-27352
10.23	Collaboration and License Agreement by and between Isis Pharmaceuticals, Inc., and Idera Pharmaceuticals, Inc., dated May 24, 2001.		10-Q	August 20, 2001	000-27352
10.24			10-K	March 31, 2003	000-27352

	Amendment No. 1 to the Collaboration and License Agreement, dated as of May 24, 2001 by and between Isis Pharmaceuticals, Inc. and Idera Pharmaceuticals, Inc., dated as of August 14, 2002.			
10.25	Master Agreement relating to the Cross License of Certain Intellectual Property and Collaboration by and between Isis Pharmaceuticals, Inc. and Idera Pharmaceuticals, Inc., dated May 24, 2001.	10-Q	August 20, 2001	000-27352
10.26	Employment Agreement by and between Stephen R. Seiler and Idera Pharmaceuticals, Inc. effective as of July 25, 2001.	10-Q	November 14, 2001	000-27352
10.27	Amendment to Employment Agreement, dated August 20, 2004, by and between Idera Pharmaceuticals, Inc. and Stephen R. Seiler.	10-Q	November 12, 2004	001-31918
10.28	Unit Purchase Agreement by and among Idera Pharmaceuticals, Inc. and certain persons and entities listed therein, dated April 1, 1998.	10-K	April 1, 2002	000-27352
10.29	Executive Stock Option Agreement for 3,150,000 Options effective as of July 25, 2001 between Idera Pharmaceuticals, Inc. and Stephen R. Seiler.	10-Q	August 14, 2002	000-27352
10.30	Executive Stock Option Agreement for 490,000 Options effective as of July 25, 2001 between Idera Pharmaceuticals, Inc. and Stephen R. Seiler.	10-Q	August 14, 2002	000-27352
10.31	Executive Stock Option Agreement for 1,260,000 Options effective as of July 25, 2001 between Idera Pharmaceuticals, Inc. and Dr. Sudhir Agrawal.	10-Q	October 24, 2002	000-27352
10.32	Executive Stock Option Agreement for 550,000 Options effective as of July 25, 2001 between Idera	10-Q	October 24, 2002	000-27352

	Pharmaceuticals, Inc. and Dr. Sudhir Agrawal.			
10.33	Executive Stock Option Agreement for 500,000 Options effective as of July 25, 2001 between Idera Pharmaceuticals, Inc. and Dr. Sudhir Agrawal.	10-Q	October 24, 2002	000-27352
10.34	Consulting Agreement effective as of October 1, 2002 between Idera Pharmaceuticals, Inc. and Pillar, S.A.	10-Q	October 24, 2002	000-27352
10.35	License Agreement by and between Louisiana State University and Idera Pharmaceuticals, Inc., dated July 1, 1998.	10-K	March 31, 2003	000-27352
10.36	Engagement Letter, dated as of April 18, 2003, by and among Idera Pharmaceuticals, Inc., Pillar Investment Limited and PrimeCorp Finance S.A.	S-2	October 10, 2003	333-109630

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Exhibit Number	Description	Filed with this Form S-1	Incorporated by Reference		
			Form or Schedule	Filing Date with SEC	SEC File Number
10.37	Registration Rights Agreement, dated as of August 28, 2003 by and among Idera Pharmaceuticals, Inc., the Purchasers and the Agents.		S-2	October 10, 2003	333-109630
10.38	Form of Common Stock Purchase Warrant issued to purchasers of units in a private placement on August 28, 2003 and August 29, 2003.		S-2	October 10, 2003	333-109630
10.39	Form of Common Stock Purchase Warrant issued to selected dealers and placement agents on August 28, 2003 in connection with a private placement.		S-2	October 10, 2003	333-109630
10.40	Engagement Letter, dated as of August 27, 2004, by and among Idera Pharmaceuticals, Inc. and Pillar Investment Limited.		10-Q	November 12, 2004	001-31918
10.41	Registration Rights Agreement, dated August 27, 2004 by and among Idera Pharmaceuticals, Inc., Pillar Investment Limited and Purchasers.		10-Q	November 12, 2004	001-31918
10.42	Form of Warrants issued to investors and the placement agent in connection with Idera Pharmaceuticals s August 27, 2004 financing.		10-Q	November 12, 2004	001-31918
10.43	Amendment to the License Agreement dated as of October 30, 1995 by and between Idera Pharmaceuticals, Inc. and Yoon S. Cho-Chung, M.D., Ph.D. dated February 4, 2005.		10-K	March 25, 2005	001-31918
10.44	Summary of Director Compensation of Idera Pharmaceuticals, Inc.		10-K	March 25, 2005	001-31918
10.45	Non-Employee Director Nonstatutory Stock Option Agreement Granted under 1997 Stock Incentive Plan.		10-K	March 25, 2005	001-31918
10.46	Form of Incentive Stock Option Agreement Granted Under the 2005 Stock		8-K	June 21, 2005	001-31918

	Incentive Plan.			
10.47	Form of Nonstatutory Stock Option Agreement Granted Under the 2005 Stock Incentive Plan.	8-K	June 21, 2005	001-31918
10.48	Research Collaboration and Option Agreement by and between Idera Pharmaceuticals, Inc. and Novartis International Pharmaceutical Ltd.	10-Q	August 9, 2005	001-31918
10.49	License, Development and Commercialization Agreement by and between Idera Pharmaceuticals, Inc and Novartis International Pharmaceutical Ltd.	10-Q	August 9, 2005	001-31918
10.50	Engagement letter, dated May 20, 2005, by and among Idera Pharmaceuticals, Inc. and Pillar Investment Limited	10-Q	August 9, 2005	001-31918
10.51	4% Convertible Subordinated Notes Due 2008 Noteholders Agreement by and among Idera Pharmaceuticals, Inc. and Noteholders	10-Q	August 9, 2005	001-31918
10.52	Employment Agreement dated December 5, 2005 by and between Robert W. Karr, M.D. and Idera Pharmaceuticals, Inc.	10-K	March 31, 2006	001-31918
10.53	Registration Rights Agreement dated as of May 20, 2005 by and among Idera Pharmaceuticals, Inc., Purchasers and Pillar Investment Limited.	10-Q	August 9, 2005	001-31918
10.54	Common Stock Purchase Warrant issued to Pillar Investment Limited in connection with the May 20, 2005 Financing.	10-Q	August 9, 2005	001-31918
10.55	Amendment No. 2 Rights Agreement, dated as of March 24, 2006, between Idera Pharmaceuticals, Inc. and Mellon Investor Services LLC, as amended.	8-K	March 29, 2006	001-31918
10.56	Common Stock Purchase Agreement, dated March 24, 2006, by and among Idera Pharmaceuticals, Inc. and the Investors named therein.	8-K	March 29, 2006	001-31918
10.57		8-K	March 29, 2006	001-31918

	Registration Rights Agreement, dated March 24, 2006, by and among Idera Pharmaceuticals, Inc. and the Investors named therein.			
10.58	Form of Warrant issued to purchasers of common stock in a private placement on March 24, 2006.	8-K	March 29, 2006	001-31918
10.59	Common Stock Purchase Agreement, dated March 24, 2006, by and between Idera Pharmaceuticals, Inc. and Biotech Shares Ltd.	8-K	March 29, 2006	001-31918
10.60	Engagement Letter, dated March 24, 2006, between Idera Pharmaceuticals Inc. and Youssef El Zein.	8-K	March 29, 2006	001-31918

Table of Contents

Exhibit Number	*Description*	Filed with this Form S-1	Incorporated by Reference: Form or Schedule	Filing Date with SEC	SEC File Number
10.61	Registration Rights Agreement, dated March 24, 2006, by and among Idera Pharmaceuticals, Inc., Biotech Shares Ltd. and Youssef El Zein.		8-K	March 29, 2006	001-31918
10.62	Warrant issued to Biotech Shares Ltd. on March 24, 2006.		8-K	March 29, 2006	001-31918
10.63	Employment agreement, dated April 13, 2006 between the Registrant and Robert G. Andersen.		10-Q	May 12, 2006	001-31918
10.64	Amendment No. 1, dated July 10, 2006, to the Common Stock Purchase Agreement, dated March 24, 2006, by and between Idera Pharmaceuticals, Inc. and Biotech Shares, Ltd.		10-Q	August 14, 2006	001-31918
10.65	Amendment No. 1, dated June 23, 2006, to the Registration Rights Agreement, dated March 24, 2006, by and among Idera Pharmaceuticals, Inc., Biotech Shares Ltd. and Youssef El Zein		10-Q	August 14, 2006	001-31918
10.66	Amendment No. 1 to 1995 Employee Stock Purchase Plan dated June 2006		10-Q	August 14, 2006	001-31918
23.1	Consent of Independent Registered Public Accounting Firm.	X			
23.2	Consent of Wilmer Cutler Pickering Hale and Dorr LLP, included in Exhibit 5.1 filed herewith.	X			
24.1	Power of Attorney (See page II-5 of this Registration Statement).	X			

Confidential treatment granted as to certain portions, which portions are omitted and filed separately with the

Commission.