

IDENIX PHARMACEUTICALS INC

FORM 424B5

(Prospectus filed pursuant to Rule 424(b)(5))

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Symbol	IDIX
SIC Code	2834 - Pharmaceutical Preparations
Industry	Biotechnology & Drugs
Sector	Healthcare
Fiscal Year	12/31

PROSPECTUS SUPPLEMENT
(To Prospectus dated October 17, 2008)

7,248,936 Shares



Common Stock

We are offering 7,248,936 shares of our common stock.

Our common stock is listed on the NASDAQ Global Market and traded under the symbol "IDIX." The last reported sale price of our common stock on the NASDAQ Global Market on August 4, 2009 was \$3.69 per share.

Investing in our common stock involves significant risks. You should read this prospectus supplement and the accompanying prospectus carefully before you make your investment decision. See "Risk Factors" on page S- 4 of this prospectus supplement and page 4 of the accompanying prospectus, as well as documents we file with the Securities and Exchange Commission that are incorporated by reference herein for more information.

	Per Share	Total
Public offering price	\$ 3.14	\$ 22,761,659
Underwriting discounts and commissions	\$ 0.188	\$ 1,362,800
Proceeds, before expenses, to us	\$ 2.952	\$ 21,398,859

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

The shares of common stock will be ready for delivery on or about August 10, 2009.

Leerink Swann
Sole Book-Running Manager

The date of this prospectus supplement is August 5, 2009.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this common stock offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference herein. The second part, the accompanying prospectus, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying prospectus or any document incorporated by reference therein filed prior to the date of this prospectus supplement, you should rely on the information in this prospectus supplement; provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date — for example, a document incorporated by reference in the accompanying prospectus — the statement in the document having the later date modifies or supersedes the earlier statement.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

You should rely only on the information contained in this prospectus supplement or the accompanying prospectus, or incorporated by reference herein. We have not authorized, and the underwriter has not authorized, anyone to provide you with information that is different. The information contained in this prospectus supplement or the accompanying prospectus, or incorporated by reference herein is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or of any sale of our common stock. It is important for you to read and consider all information contained in this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you in the sections entitled “Where You Can Find More Information” and “Incorporation of Certain Information by Reference” in this prospectus supplement and in the accompanying prospectus.

We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of the common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

Unless otherwise stated, all references in this prospectus to “we,” “us,” “our,” “Idenix,” the “Company” and similar designations refer to Idenix Pharmaceuticals, Inc. and its wholly-owned subsidiaries. “Idenix” is a trademark of Idenix Pharmaceuticals, Inc. All other trademarks or service marks appearing in this prospectus supplement are the property of their respective holders.

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights information contained elsewhere in this prospectus supplement and the accompanying prospectus and in the documents we incorporate by reference. This summary does not contain all of the information that you should consider before deciding to invest in our common stock. You should read this entire prospectus supplement and the accompanying prospectus carefully, including the “Risk Factors” section contained in this prospectus supplement and our consolidated financial statements and the related notes and the other documents incorporated by reference herein.

IDENIX PHARMACEUTICALS, INC.

Our Business

Idenix Pharmaceuticals, Inc. is a biopharmaceutical company engaged in the discovery and development of drugs for the treatment of human viral and other infectious diseases with operations in the United States and Europe. To date, we have successfully developed and commercialized a drug, telbivudine (Tyzeka®/Sebivo®), for the treatment of hepatitis B virus, or HBV, that we licensed to Novartis Pharma AG, or Novartis. We also discovered and developed through proof-of-concept clinical testing IDX899, a drug candidate, from the class of compounds known as non-nucleoside reverse transcriptase inhibitors, or NNRTIs, for the treatment of human immunodeficiency virus, or HIV. In February 2009, we entered into a license agreement with GlaxoSmithKline, or GSK, which we refer to as the GSK license agreement, under which we granted GSK an exclusive license to develop, manufacture and commercialize our NNRTI compounds, including IDX899, for the treatment of human diseases, including HIV/AIDS, on a worldwide basis. Pursuant to the GSK license agreement, GSK is solely responsible for the development, manufacture and commercialization of licensed compounds and products containing such compounds. Subject to certain conditions, GSK is also responsible for the prosecution of our patents licensed to GSK under the GSK license agreement. In February 2009, we also entered into a stock purchase agreement with GSK. Under these agreements, we received a \$34.0 million payment, which consisted of a \$17.0 million license fee payment under the GSK license agreement and \$17.0 million under the GSK stock purchase agreement. Pursuant to the GSK license agreement, we could potentially receive up to \$416.5 million in development, regulatory and sales milestones. We are also entitled to receive double-digit tiered royalties on worldwide sales of products containing IDX899.

In May 2003, we entered into a collaboration with Novartis relating to the worldwide development and commercialization of our product candidates. We have amended this collaboration arrangement several times and refer to such amended arrangement as the development and commercialization agreement. With respect to the licensing of IDX899 described above, Novartis waived its option for all of our NNRTI compounds, including IDX899, which allowed us to enter into the GSK license agreement. In addition to the collaboration, Novartis also purchased approximately 54% of our outstanding capital stock in May 2003. As of July 31, 2009, Novartis owned approximately 53% of our outstanding common stock. Immediately following this offering, Novartis will own approximately 47% of our outstanding common stock.

Our current research and development focus is on the development of compounds for the treatment of the hepatitis C virus, or HCV. Our HCV discovery program is focused on major classes of drugs for the treatment of HCV, which include nucleoside/nucleotide polymerase inhibitors, protease inhibitors, non-nucleoside polymerase inhibitors and NS5A inhibitors. The most advanced of these efforts is our research on the next-generation nucleoside/nucleotide polymerase inhibitors. IDX184 is the lead drug candidate from that program.

We successfully completed a phase I study of IDX184 in healthy volunteers in October 2008. In July 2009, we successfully completed a proof-of-concept study of IDX184 in 41 treatment-naïve HCV genotype-1-infected patients who were randomized to receive either IDX184 or placebo once-daily for three days. Four dosing cohorts (25 mg, 50 mg, 75 mg and 100 mg) of IDX184 were evaluated. IDX184 was well tolerated in this study with no serious adverse events reported and no discontinuations from the study. Patterns of adverse events were similar between IDX184- and placebo-treated patients. Mean viral load declines observed in this study ranged from .46 log₁₀ in the 25 mg/day cohort to .74 log₁₀ in the 100 mg/day cohort. Viral load declines were observed in 30 of the 31 IDX184-treated patients, with no response observed in one patient in the 25 mg cohort.

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As part of the development and commercialization agreement between us and Novartis, Novartis has an option to license any of our development-stage product candidates, including IDX184, after early demonstration of activity and safety in a proof-of-concept clinical study. The terms of these options, including license fees, milestone payments and payments in reimbursement of development expenses, vary according to the disease which the product candidate treats, the stage of development of the product candidate, and the present value of future cash flows of the product candidate.

Furthermore, under the development and commercialization agreement, we must provide Novartis with notice and a data package as part of Novartis' determination to license a drug candidate from us, including IDX184. This notice includes information regarding the efficacy, safety and such other related material information from the final data set for the relevant clinical trial for the drug candidate, as well as a proposed development plan and proposed licensing terms. The development and commercialization agreement is not specific as to the exact content of the information required in such notice. If Novartis disputes the adequacy of the notice or data package, Novartis may argue that it is entitled to additional information or data, which would likely lead to a delay in its review of our drug candidate. Potential disputes over the adequacy of the notice and data package we provide Novartis may cause delays in our development programs in order to resolve any disputes with Novartis over the adequacy of such material. This could require substantial financial resources and could take a significant amount of time to complete.

At this time we do not know if Novartis intends to license IDX184 or the terms and conditions of any potential licensing arrangement with Novartis, if any.

Company Information

We are a Delaware corporation. Our principal offices are located at 60 Hampshire Street, Cambridge, Massachusetts 02139. The telephone number of our principal executive offices is 617-995-9800. Our Internet address is www.idenix.com. The information contained on our website is not incorporated by reference and should not be considered as part of this prospectus supplement. Our website address is included in this prospectus supplement as an inactive textual reference only.

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THE OFFERING

Common stock offered by us in this offering	7,248,936 shares
Common stock to be outstanding after this offering	66,327,932 shares
Use of Proceeds	For general corporate purposes, including working capital, research and development expenditures, capital expenditures and potential acquisition of new businesses, technologies or products that we believe complement or expand our business. See “Use of Proceeds.”
Risk Factors	You should read the “Risk Factors” section of this prospectus supplement beginning on page S- 4 for a discussion of factors to consider before deciding to purchase shares of our common stock.
NASDAQ Global Market symbol	IDIX

The number of shares of our common stock to be outstanding after this offering is based on 59,078,996 shares outstanding as of July 31, 2009 and excludes:

- 6,483,042 shares of common stock issuable upon the exercise of outstanding stock options at a weighted-average exercise price of \$7.93 per share; and
- an aggregate of 1,280,171 additional shares of common stock reserved for future issuance under our 2005 Stock Incentive Plan, as amended, and our 1998 Equity Incentive Plan, as amended.

RISK FACTORS

Investing in our common stock involves significant risks. In addition to the other information included or incorporated by reference in this prospectus supplement and the accompanying prospectus, you should carefully consider the risks described under the heading “Risk Factors” in our most recent annual report on Form 10-K, as revised or supplemented by our quarterly reports on Form 10-Q filed with the SEC since the filing of our most recent annual report on Form 10-K, each of which are on file with the SEC and are incorporated herein by reference, before making an investment decision. The risks and uncertainties we have described are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business operations.

Risks Relating to this Offering

Investors in this offering will pay a much higher price than the book value of our stock.

If you purchase common stock in this offering, you will incur an immediate and substantial dilution in net tangible book value of \$3.07 per share, after giving effect to the sale by us of 7,248,936 shares in this offering at an offering price of \$3.14 per share. In the past, we have issued options to acquire common stock at prices significantly below this offering price. To the extent these outstanding options are ultimately exercised, you will incur additional dilution.

Our management will have broad discretion over the use of the net proceeds from this offering, and you may not agree with how we use the proceeds and the proceeds may not be invested successfully.

Our management will have broad discretion as to the use of the net proceeds from any offering by us and could use them for purposes other than those contemplated at the time of this offering. Accordingly, you may be relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the proceeds will be invested in a way that does not yield a favorable, or any, return for Idenix.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These statements relate to future events and our future financial performance. These statements include but are not limited to statements regarding:

- our expectations regarding clinical trials, development timelines and regulatory authority filings for IDX899 and IDX184 and other drug candidates under development by us or our existing and future collaborators;
- expectations regarding our net loss, revenues and costs and expenses in future periods as compared to previous periods;
- the data that will be generated by ongoing and planned clinical trials, and the ability to use that data for the design and initiation of further clinical trials and to support regulatory filings, including potentially a new drug application, or NDA, for IDX184 and other drug candidates under development by us or our existing and future collaborators;
- our beliefs that we could reach agreement with regulatory authorities on the initiation of a registration program for IDX375, our lead non-nucleoside polymerase inhibitor drug candidate, and a protease inhibitor product candidate in the near future;
- our expectations regarding the future market demand and medical need for our other drug candidates;
- our ability to license drug candidates to Novartis or another third party;
- our beliefs regarding the support provided by clinical trials and preclinical and nonclinical studies of our drug candidates for further investigation, clinical trials or potential use as a treatment of those drug candidates;
- the focus of our drug development efforts;
- the establishment, development and maintenance of collaborative relationships;
- our ability to use our research programs to identify and develop new drug candidates to address serious diseases and significant unmet medical needs; and
- our liquidity and our expectations regarding our needs for additional capital and ability to raise such additional capital, if necessary.

In some cases, you can identify forward-looking statements by terminology such as “may”, “will”, “should”, “expects”, “anticipates”, “believes”, “estimates”, “predicts”, “potential”, or “continue” or the negative of such terms or other comparable terminology. These statements are only predictions and involve known and unknown risks, uncertainties and other factors, including the risks outlined above under “Risk Factors”, that may cause our actual results to differ materially from the results, levels of activity, performance or achievements expressed or implied by such forward-looking statements. Before deciding to purchase our securities you should carefully consider the risks described in the “Risk Factors” section, in addition to the information set forth in this prospectus supplement, the accompanying prospectus and in the documents we incorporate by reference. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. We do not assume any obligation to update any forward-looking statements made by us.

USE OF PROCEEDS

We estimate that the net proceeds we will receive from this offering will be approximately \$21.2 million, after deducting the underwriting discount and estimated offering expenses.

We intend to use the net proceeds from this offering for general corporate purposes. Although we have not yet identified specific uses for these proceeds, we currently anticipate using the proceeds for some or all of the following purposes:

- working capital;
- research and development expenditures;
- capital expenditures; and
- potential acquisitions of new businesses, technologies or products that we believe complement or expand our business.

With respect to our research and development expenditures, such expenditures will be focused on:

- advancing our IDX184 clinical program;
- assuming positive results from the IND-enabling preclinical studies, beginning clinical studies for our non-nucleoside polymerase inhibitor clinical candidate; and
- assuming positive results from the IND-enabling preclinical studies, beginning clinical studies for our non-nucleoside polymerase inhibitor clinical candidate protease inhibitor clinical candidate.

We have not determined the amounts we plan to spend on any of the areas listed above or the timing of these expenditures. As a result, our management will have broad discretion to allocate the net proceeds from this offering. We have no current commitments or agreements with respect to any acquisitions and may not make any acquisitions. Pending application of the net proceeds as described above, we intend to invest the net proceeds of the offering in short-term, investment-grade and U.S. government securities.

DILUTION

If you purchase our common stock in this offering, your interest will be diluted to the extent of the difference between the public offering price per share and the net tangible book value per share of our common stock after this offering. We calculate net tangible book value per share by subtracting our total liabilities from our total tangible assets and dividing the difference by the number of outstanding shares of our common stock.

Our net tangible book value at June 30, 2009 was \$(16.4) million, or \$(0.28) per share, based on 59,078,996 shares of our common stock outstanding. After giving effect to the sale of 7,248,936 shares of common stock by us at an offering price of \$3.14 per share, less the underwriting discount and estimated offering expenses, our net tangible book value at June 30, 2009 would have been \$4.8 million, or \$0.07 per share. This represents an immediate increase in net tangible book value of \$0.35 per share to existing stockholders and an immediate dilution of \$3.07 per share to investors in this offering. The following table illustrates this per share dilution:

Public offering price per share		\$	3.14
Net tangible book value per share as of June 30, 2009	\$	(0.28)	
Increase per share attributable to new investors purchasing shares in this offering		0.35	
Net tangible book value per share after this offering			0.07
Dilution per share to new investors		\$	3.07

In the discussion and table above, we assume no exercise of outstanding options. As of June 30, 2009, there were 6,483,042 shares of common stock issuable upon exercise of outstanding options with a weighted average exercise price of \$7.93 per share. To the extent that any of these outstanding options are exercised, there will be further dilution to new investors. In addition, if outstanding options are exercised, other than outstanding options granted under our 1998 equity incentive plan, Novartis could exercise its right to purchase additional shares of our common stock, which would further dilute new investors.

UNDERWRITING

Subject to the terms and conditions set forth in a purchase agreement among us and Leerink Swann LLC, which is acting as sole underwriter for this offering, we have agreed to sell to the underwriter, and the underwriter has agreed to purchase from us all of the shares offered by us in this offering.

We have agreed to indemnify the underwriter against certain liabilities, including liabilities under the Securities Act of 1933, as amended, or to contribute to payments the underwriter may be required to make in respect of those liabilities.

The underwriter is offering the shares, subject to prior sale, when, as and if issued to and accepted by it, subject to approval of legal matters by its counsel, including the validity of the shares, and other conditions contained in the purchase agreement, such as the receipt by the underwriter of officer’s certificates and legal opinions. The underwriter reserves the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commissions and Discounts

The underwriter proposes initially to offer the shares to the public at the public offering price set forth on the cover page of this prospectus supplement and to dealers at that price less a concession not in excess of \$0.113 per share. After the public offering, the public offering price, concession and discount may be changed.

The following table shows the public offering price, underwriting discount and proceeds before expenses to us.

	Per Share	Total
Public offering price	\$ 3.14	\$ 22,761,659
Underwriting discount	\$ 0.188	\$ 1,362,800
Proceeds, before expenses, to Idenix	\$ 2.952	\$ 21,398,859

The expenses of the offering, not including the underwriting discount, are estimated at approximately \$200,000 and are payable by us.

No Sales of Similar Securities

We and our officers and directors have agreed, subject to certain exceptions, not to sell or transfer any common stock or securities convertible into, exchangeable for, exercisable for, or repayable with common stock, other than the shares which we may sell in this offering, for 60 days after the date of this prospectus supplement without first obtaining the written consent of Leerink Swann. Specifically, we and these other individuals have agreed not to directly or indirectly

- offer, pledge, sell or contract to sell any common stock,
- sell any option or contract to purchase any common stock,
- purchase any option or contract to sell any common stock,
- grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of any common stock, or
- enter into any swap or other agreement that transfers, in whole or in part, the economic consequence of ownership of any common stock, whether any such swap or transaction described in this list is to be settled by delivery of shares or other securities, in cash or otherwise.

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The restrictions described in the immediately preceding paragraph do not apply to:

- transactions relating to shares of common stock or other securities acquired in open market transactions after the completion of this offering, provided that no filing under Section 16(a) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, shall be required or shall be voluntarily made in connection with subsequent sales of common stock or other securities acquired in such open market transactions,
- transfers of shares of common stock or any security convertible into or exercisable or exchangeable for common stock as a bona fide gift,
- transfers of shares of common stock or any security convertible into or exercisable or exchangeable for common stock to the immediate family of the individual, to a trust the beneficiaries of which are exclusively the individual and/or a member or members of the immediate family of the individual, or to any corporation, partnership, limited liability company or other entity all of the beneficial ownership interests of which are held exclusively by the individual and/or a member or members of the immediate family of the individual,
- transfers of shares of common stock or any security convertible into or exercisable or exchangeable for common stock upon death by will or intestate succession,
- the exercise of any option to purchase shares of common stock, *provided* that the underlying common stock continues to be subject to the restrictions set forth above,
- transactions pursuant to any trading plan established pursuant to Rule 10b5-1 of the Exchange Act for the transfer of shares of common stock that has been entered into by the individual prior to the date of the agreement, or
- the entry into any trading plan established pursuant to Rule 10b5-1 of the Exchange Act, provided that no sales or other dispositions may occur under such plan until the expiration of the restricted period.

The 60-day restricted period in all of the agreements is subject to extension if (i) during the last 17 days of the restricted period we issue an earnings release or material news or a material event relating to us occurs or (ii) prior to the expiration of the restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the lock-up period, in which case the restrictions imposed in these lock-up agreements shall continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event, unless the underwriter waives the extension in writing.

NASDAQ Global Market Listing

Our common stock is traded on the NASDAQ Global Market under the symbol “IDIX.”

Price Stabilization, Short Positions and Penalty Bids

Until the distribution of the shares is completed, SEC rules may limit the underwriter from bidding for and purchasing our common stock. However, the underwriter may engage in transactions that stabilize the price of the common stock, such as bids or purchases to peg, fix or maintain that price.

In connection with the offering, the underwriter may purchase and sell our common stock in the open market. These transactions may include short sales, purchases on the open market to cover positions created by short sales and stabilizing transactions. Short sales involve the sale by the underwriter of a greater number of shares than they are required to purchase in the offering. “Naked” short sales are sales in excess of an overallotment option. The underwriter was not given an overallotment option. The underwriter must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriter is concerned that there may be downward pressure on the price of our common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of shares of common stock made by the underwriter in the open market prior to the completion of the offering.

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Similar to other purchase transactions, the underwriter's purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market.

The underwriter makes no representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. In addition, neither we nor the underwriter make any representation that the representatives will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

Passive Market Making

In connection with the offering, the underwriter may engage in passive market-making transactions in the common stock on the NASDAQ Global Market in accordance with Rule 103 of Regulation M under the Exchange Act during the period before the commencement of offers or sales of common stock and extending through the completion and distribution. A passive market-maker must display its bids at a price not in excess of the highest independent bid of the security. However, if all independent bids are lowered below the passive market-maker's bid, that bid must be lowered when specified purchase limits are exceeded.

Notice to Hong Kong Investors

The shares may not be offered or sold in Hong Kong by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), or (ii) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) ("SFO") and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a "prospectus" within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong) and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the SFO and any rules made thereunder.

Other Relationships

In addition, the underwriter and its affiliates have provided from time to time, and may provide in the future, investment and commercial banking and financial advisory services to us in the ordinary course of business, for which they have received and may continue to receive customary fees and commissions.

LEGAL MATTERS

The validity of the shares of common stock offered hereby will be passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP, Boston, Massachusetts. The underwriter is being represented in connection with this offering by Ropes & Gray LLP, Boston, Massachusetts.

EXPERTS

The financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Annual Report on Internal Control over Financial Reporting) incorporated in this prospectus supplement by reference to the Annual Report on Form 10-K for the year ended December 31, 2008 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We file reports, proxy statements and other information with the SEC as required by the Securities Exchange Act of 1934, as amended. You can find, copy and inspect information we file at the SEC's public reference room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You can call the SEC at 1-800-SEC-0330 for further information about the public reference room. You can review our electronically filed reports, proxy and information statements on the SEC's web site at <http://www.sec.gov> or on our web site at <http://www.idenix.com>. Information included on our web site is not a part of this prospectus supplement or the accompanying prospectus.

This prospectus supplement is part of a registration statement that we filed with the SEC. The registration statement contains more information than this prospectus regarding us and the securities, 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 INFORMATION BY REFERENCE

The SEC allows 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 that we file with the SEC in the future and incorporate by reference in this prospectus automatically updates and supersedes previously filed information as applicable. The following documents filed with the SEC pursuant to the Exchange Act of 1934, as amended, are incorporated herein by reference (other than, in each case, documents or information deemed to have been furnished and not filed in accordance with SEC rules):

- our Annual Report on Form 10-K for the year ended December 31, 2008, filed with the SEC on March 4, 2009;
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2009 and June 30, 2009, filed with the SEC on May 8, 2009 and July 31, 2009, respectively;
- our Current Reports on Form 8-K filed with the SEC on February 6, 2009, February 9, 2009, February 18, 2009, June 3, 2009 and July 20, 2009;
- the description of our common stock contained in our Registration Statement on Form 8-A dated June 16, 2004, including any amendments or reports filed for the purpose of updating those descriptions; and
- all documents filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (1) after the date of the filing of this prospectus supplement and (2) until all of the common stock to which this prospectus relates has been sold or the offering is otherwise terminated, except in each case for information contained in any such filing where we indicate that such information is being furnished and is not to be considered "filed" under the Exchange Act, will be deemed to be incorporated by reference in this prospectus supplement and the accompanying prospectus and to be a part hereof from the date of filing of such documents.

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You may request, orally or in writing, a copy of the documents which are incorporated by reference, which will be provided to you at no cost by contacting: Idenix Pharmaceuticals, Inc., 60 Hampshire Street, Cambridge, Massachusetts 02139, Attention: Investor Relations Department, (617) 995-9800.

PROSPECTUS

\$100,000,000 Common Stock



We may from time to time issue up to an aggregate of \$100,000,000 of common stock in one or more issuances. We may sell these securities to or through underwriters, directly to investors or through agents. This prospectus describes the general manner in which our common stock may be offered using this prospectus. We will provide you with specific terms of the offerings in one or more supplements to this prospectus.

Our common stock is listed on the NASDAQ Global Market and traded under the symbol "IDIX." The last reported sale price of our common stock on the NASDAQ Global Market on October 13, 2008 was \$5.34 per share.

Investing in our securities involves significant risks. See "Risk Factors" on page 4 .

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

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

Prospectus dated October 17, 2008.

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You should rely only on the information contained in this prospectus and the documents incorporated by reference in this prospectus or to which we have referred you. We have not, and the underwriters have not, authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus does not constitute an offer to sell, or a solicitation of an offer to purchase, the securities offered by this prospectus in any jurisdiction to or from any person to whom or from whom it is unlawful to make such offer or solicitation of an offer in such jurisdiction. You should not assume that the information contained in this prospectus or any document incorporated by reference is accurate as of any date other than the date on the front cover of the applicable document. Neither the delivery of this prospectus nor any distribution of securities pursuant to this prospectus shall, under any circumstances, create any implication that there has been no change in the information set forth or incorporated by reference into this prospectus or in our affairs since the date of this prospectus. Our business, financial condition, results of operations and prospects may have changed since that date.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf” registration process. Under this shelf registration process, we may from time to time sell common stock in one or more offerings up to a total dollar amount of \$100,000,000 of common stock in one or more offerings. We have provided to you in this prospectus a general description of the common stock we may offer. Each time we offer shares of common stock under this shelf registration process, we will provide a prospectus supplement that will contain specific information about the terms of the offering. We may also add, update or change in the prospectus supplement or any “free writing prospectus” we may authorize to be delivered to you any of the information contained in this prospectus. To the extent there is a conflict between the information contained in this prospectus and the prospectus supplement or any free writing prospectus we may authorize to be delivered to you, you should rely on the information in the prospectus supplement or free writing prospectus, as the case may be, provided that if any statement in one of these documents is inconsistent with a statement in another document having a later date — for example, a document incorporated by reference in this prospectus or any prospectus supplement — the statement in the document having the later date modifies or supersedes the earlier statement. This prospectus, together with the applicable prospectus supplements and any free writing prospectus we may authorize to be delivered to you, includes all material information relating to this offering.

As permitted by the rules and regulations of the SEC, the registration statement, of which this prospectus forms a part, includes additional information not contained in this prospectus. You may read the registration statement and the other reports we file with the SEC at the SEC’s web site or at the SEC’s offices described below under the heading “Where You Can Find Additional Information.”

WHERE YOU CAN FIND MORE INFORMATION

We file reports, proxy statements and other information with the SEC as required by the Securities Exchange Act of 1934, as amended, or the Exchange Act. You can find, copy and inspect information we file at the SEC’s public reference room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You can call the SEC at 1-800-SEC-0330 for further information about the public reference room. You can review our electronically filed reports, proxy and information statements on the SEC’s web site at <http://www.sec.gov> or on our web site at <http://www.idenix.com>. Information included on our web site is not a part of this prospectus or any prospectus supplement.

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 the securities, including exhibits and schedules. You can obtain a copy of the registration statement from the SEC at any address listed above or from the SEC’s web site.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

We are “incorporating by reference” certain documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information in the documents incorporated by reference is considered to be part of this prospectus. Statements contained in documents that we file with the SEC and that are incorporated by reference in this prospectus will automatically update and supersede information contained in this prospectus, including information in previously filed documents or reports that have been incorporated by reference in this prospectus, to the extent the new information differs from or is inconsistent with the old information. The SEC file number for the documents incorporated by reference in this prospectus is 000-49839.

We have filed or may file the following documents with the SEC and they are incorporated herein by reference as of their respective dates of filing.

- our Annual Report on Form 10-K for the year ended December 31, 2007, filed with the SEC on March 14, 2008;
- our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2008, filed with the SEC on May 5, 2008 and the quarter ended June 30, 2008, filed with the SEC on August 7, 2008;

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- our Current Reports on Form 8-K filed with the SEC on February 28, 2008, May 15, 2008 and August 5, 2008;
- our Definitive Proxy Statement on Schedule 14A filed with the SEC on April 25, 2008 in connection with our 2008 Annual Meeting of Stockholders;
- the description of our common stock contained in our Registration Statement on Form 8-A dated June 16, 2004, including any amendments or reports filed for the purpose of updating those descriptions; and
- all documents filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act (1) after the date of the filing of this registration statement and prior to its effectiveness and (2) until all of the common stock to which this prospectus relates has been sold or the offering is otherwise terminated, except in each case for information contained in any such filing where we indicate that such information is being furnished and is not to be considered “filed” under the Exchange Act, will be deemed to be incorporated by reference in this prospectus and the accompanying prospectus supplement and to be a part hereof from the date of filing of such documents.

You may request, orally or in writing, a copy of the documents which are incorporated by reference, which will be provided to you at no cost by contacting:

Idenix Pharmaceuticals, Inc.
60 Hampshire Street
Cambridge, Massachusetts 02139
Attention: Investor Relations Department
(617) 995-9800

You should rely only on the information contained in this prospectus, including information incorporated by reference as described above, or any prospectus supplement or any other document that we have specifically referred you to. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus or any prospectus supplement is accurate as of any date other than the date on the front of those documents or that any document incorporated by reference is accurate as of any date other than its filing date. You should not consider this prospectus to be an offer or solicitation relating to the securities in any jurisdiction in which such an offer or solicitation relating to the securities is not authorized. Furthermore, you should not consider this prospectus to be an offer or solicitation relating to the securities if the person making the offer or solicitation is not qualified to do so, or if it is unlawful for you to receive such an offer or solicitation.

ABOUT IDENIX PHARMACEUTICALS, INC.

Idenix Pharmaceuticals, Inc. is a biopharmaceutical company engaged in the discovery and development of drugs for the treatment of human viral and other infectious diseases with operations in the United States and Europe. Our current focus is on diseases caused by hepatitis C virus, or HCV, and human immunodeficiency virus, or HIV. We currently have a non-nucleoside reverse transcriptase inhibitor, or NNRTI, product candidate for the treatment of HIV-1 in phase I/II clinical testing and a nucleoside/nucleotide prodrug product candidate for the treatment of HCV in phase I clinical testing. We also have HCV discovery programs focusing on protease inhibitors and non-nucleoside polymerase inhibitors. Clinical candidates have been selected from these two discovery programs and are currently undergoing IND-enabling preclinical testing.

Development and Discovery Programs

HCV

We have a comprehensive HCV discovery program that is focused on small molecule anti-HCV compounds from each of the three major drug classes: nucleoside/nucleotide polymerase inhibitors, non-nucleoside polymerase inhibitors and protease inhibitors. The most advanced of these efforts is our research on the next-generation nucleoside/nucleotide polymerase inhibitors. Data from a four day study of once daily administered 10 mg/kg of IDX184 in 5 HCV-infected chimps demonstrated a median viral load reduction of 2.3 log₁₀. In July 2008, we initiated a first-in-man study of IDX184 under a United States Investigational New Drug Application, or IND. The study design is a double-blind, placebo-controlled, single dose-escalation study to evaluate

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the safety and pharmacokinetic activity of IDX184 in healthy volunteers. We plan to submit a Clinical Trial Application, or CTA, in Europe for IDX184 in 2008. A CTA is the European equivalent of an IND. A proof of concept study of IDX184 in treatment-naïve HCV-1-infected patients is planned to begin in the fourth quarter of 2008. IDX102, our other nucleotide polymerase inhibitor, is in late stage preclinical development.

We have selected IDX136 and IDX316 as our lead clinical candidates from our protease inhibitor discovery program and have begun IND-enabling pharmacology and toxicology studies. We plan to submit an IND in the United States and a CTA in Europe for one of these product candidates in 2009 assuming positive results from the IND-enabling pre-clinical studies.

We have selected IDX375 as our lead clinical candidate from our non-nucleoside HCV polymerase inhibitors program and have begun IND-enabling pharmacology and toxicology studies. We plan to submit an IND in the United States and a CTA in Europe for this product candidate in 2009 assuming positive results from the IND-enabling pre-clinical studies.

HIV

We are developing a non-nucleoside reverse transcriptase inhibitor, or NNRTI, for use in combination therapy of HIV-1 infected patients. We recently completed a phase I/II study of IDX899. Patients (n=32) receiving once-daily oral administration of 800 mg, 400 mg, 200 mg and 100 mg of IDX899 achieved mean viral load reductions of 1.78, 1.78, 1.84 and 1.87 log₁₀, respectively, after seven days of treatment as tested with the Roche Amplicor® 1.5 assay. Patients (n=8) receiving placebo achieved a mean plasma viral load increase of 0.10 log₁₀. As with IDX899-treated patients in the 800 mg, 400 mg and 200 mg cohorts, all patients receiving 100 mg/day of IDX899 showed a consistent response with all patients exhibiting a one log or greater (range: 1.3 — 2.4 log₁₀) reduction in viral load after seven days of treatment. No treatment-related serious or non-serious adverse events were reported and no patients discontinued the study. The most common adverse events observed were dyspepsia, headache and nausea; the rate of these events was similar between IDX899-treated patients and those receiving placebo. Additionally, no patterns in laboratory abnormalities between treatment groups were observed during the treatment period.

HBV

We successfully developed telbivudine for the treatment of hepatitis B, or HBV, receiving FDA approval in 2006 and EMEA and Chinese approval in 2007. In September 2007, we entered into an amendment to the development, license and commercialization agreement dated May 8, 2003 between us and Novartis Pharma AG, or Novartis, our collaboration partner, which we refer to as the 2007 Amendment. As a result of the 2007 Amendment, we transferred to Novartis all development, commercialization and manufacturing rights and obligations related to telbivudine (Tyzeka®/Sebivo®) on a worldwide basis. We receive royalty payments equal to a percentage of net sales of Tyzeka®/Sebivo®. Novartis is solely responsible for clinical trial costs and related expenditures associated with telbivudine. For more information on our relationship with Novartis, please see the section below entitled “Our Relationship with Novartis.”

All of our product candidates for HCV and HIV will require additional significant research, development, clinical trials and in some cases preclinical studies, regulatory approval and commitment of resources before any commercialization may occur. There can be no assurance whether any of these product candidates will be successfully developed or receive required regulatory approvals.

Our Relationship with Novartis

In May 2003, we entered into a collaboration with Novartis relating to the worldwide development and commercialization of our product candidates. Simultaneously, Novartis purchased approximately 54% of our outstanding capital stock from our stockholders for \$255 million in cash, with an aggregate amount of up to \$357 million contingently payable to these stockholders if we achieve predetermined development milestones relating to NM283 or related compounds.

Including shares acquired in 2005 from its affiliate, Novartis BioVentures Ltd., and shares acquired as a result of the exercise of its stock subscription rights, Novartis currently owns approximately 56% of our outstanding common stock. In connection with its initial purchase of our common stock, Novartis agreed not to acquire additional shares of our voting stock unless a majority of our independent directors approved or requested the acquisition. These restrictions terminated on May 8, 2008.

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As part of the development, license and commercialization agreement between us and Novartis, Novartis has an option to license any of our development-stage product candidates, generally 90 days after early demonstration of antiviral activity and safety in clinical testing. Pursuant to the agreement, Novartis has an option to license IDX899, our lead product candidate for HIV. It is our understanding that Novartis does not intend to exercise its option on IDX899. To date, Novartis has exercised that option for Tyzeka®/Sebivo®; valtorcitabine, a discontinued HBV product candidate; and NM283, also known as valopicitabine, a discontinued HCV product candidate.

Our collaboration arrangement with Novartis allows us to co-promote or co-market with Novartis in the United States, the United Kingdom, France, Germany, Italy and Spain all future products Novartis licenses from us. Novartis has the exclusive right to promote and market these products in the rest of the world.

Novartis Right to Purchase Common Stock

Pursuant to stock purchase rights held by Novartis, in connection with any offering by us of our common stock, Novartis has the right to purchase from us that number of shares of our common stock as is required to enable Novartis and its affiliates to maintain its percentage ownership in our company, after giving effect to the number of shares of common stock we sell in the offering but excluding the 1,187,093 shares of our common stock that were transferred to Novartis by Novartis BioVentures on August 31, 2005. If Novartis exercises this right in connection with an offering by us, we will describe the terms of such sale in a supplement to this prospectus.

Company Information

We are a Delaware corporation. Our principal offices are located at 60 Hampshire Street, Cambridge, Massachusetts 02139. The telephone number of our principal executive offices is 617-995-9800. Our Internet address is www.idenix.com. The information contained on our website is not incorporated by reference and should not be considered as part of this prospectus. Our website address is included in this prospectus as an inactive textual reference only.

Unless otherwise stated, all references in this prospectus to “we,” “us,” “our,” “Idenix,” the “company” and similar designations refer to Idenix Pharmaceuticals, Inc. and its direct and indirect wholly-owned subsidiaries.

Trademarks or service marks appearing in this prospectus are the property of their respective holders.

RISK FACTORS

Investing in our securities involves significant risks. Please see the risk factors under the heading “Risk Factors” in our most recent annual report on Form 10-K, as revised or supplemented by our quarterly reports on Form 10-Q filed with the SEC since the filing of our most recent annual report on Form 10-K, each of which are on file with the SEC and are incorporated herein by reference in this prospectus. Before making an investment decision, you should carefully consider these risks as well as other information we include or incorporate by reference in this prospectus and any prospectus supplement. The risks and uncertainties we have described are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business operations.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and the documents we incorporate by reference in this prospectus include forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, which we refer to as the Securities Act, and Section 21E of the Exchange Act. For purposes of these statutes, any statement contained herein or therein, other than a statement of historical fact, may be a forward-looking statement. For example, we may, in some cases, use words such as “anticipate,” “believe,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “project,” “should,” “will,” “would” or other words that convey uncertainty of future events or outcomes to identify these forward-looking statements. Our actual results may differ materially from those indicated by these forward-looking statements as a result of various important factors, including the factors referred to above under the heading “Risk Factors.” These important factors include the factors that we identify in the documents that we incorporate by reference

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in this prospectus. If one or more of these factors materialize, or if any underlying assumptions prove incorrect, our actual results, performance or achievements may vary materially from any future results, performance or achievements expressed or implied by these forward-looking statements. You should consider these factors and the other cautionary statements made in this prospectus, any prospectus supplement or the documents we incorporate by reference in this prospectus as being applicable to all related forward-looking statements wherever they appear in this prospectus, any prospectus supplement or the documents incorporated by reference. While we may elect to update forward-looking statements wherever they appear in this prospectus, any prospectus supplement or the documents incorporated by reference, we do not assume, and specifically disclaim, any obligation to do so, whether as a result of new information, future events or otherwise.

USE OF PROCEEDS

Unless otherwise provided in the applicable prospectus supplement, we currently intend to use the net proceeds from the sale of the securities under this prospectus for general corporate purposes, working capital, research and development expenses, including clinical trial costs, general and administrative expenses, and potential acquisition of, or investment in, companies, technologies, products or assets that complement our business. We will set forth in a prospectus supplement relating to a specific offering our intended use for the net proceeds received from the sale of securities in that offering. Pending the application of the net proceeds, we intend to invest the net proceeds in short-term investment grade and U.S. government securities.

DESCRIPTION OF COMMON STOCK

The following description of our common stock, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the common stock that we may offer under this prospectus. For the complete terms of our common stock, please refer to our restated certificate of incorporation, as amended, and our amended and restated bylaws, which are incorporated by reference into the registration statement, of which this prospectus forms a part. The terms of our common stock may also be affected by General Corporation Law of Delaware.

Authorized Capital Stock

Our authorized capital stock consists of 125,000,000 shares of common stock, \$0.001 par value per share. As of October 8, 2008, we had 56,513,688 shares of common stock outstanding. All of our outstanding shares of common stock are duly authorized, validly issued, fully paid and non-assessable.

Common Stock

Dividend Rights

The holders of outstanding shares of our common stock are entitled to receive dividends, payable in cash, property or stock, out of assets legally available at the times and in the amounts as our board of directors may from time to time determine.

Voting Rights

Each share of our common stock has identical rights and privileges in every respect. Each holder of common stock is entitled to one vote for each share of common stock held on all matters submitted to a vote of stockholders. Our common stock does not have cumulative voting rights. Any election of directors by our stockholders is determined by a plurality of the votes cast by the stockholders.

Liquidation and Dissolution

If we voluntarily or involuntarily liquidate, dissolve or wind-up, the holders of our common stock will be entitled to receive all of our assets available for distribution ratably in proportion to the number of shares of common stock held by them.

Other Rights and Restrictions

Holders of our common stock do not have preemptive rights, and they have no right to convert their common stock into any other securities. Our common stock is not subject to redemption by us. Our restated certificate of incorporation, as amended and our restated and amended by laws do not restrict the ability of a

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holder of common stock to transfer his or her shares of common stock. When we issue shares of common stock under this prospectus, the shares will be fully paid and non-assessable and will not have, or be subject to, any preemptive or similar rights. The rights, preferences and privileges of holders of our common stock are subject to and may be adversely affected by, the rights of the holders of shares of any series of preferred stock which we may, subject to stockholder approval, authorize, designate and issue in the future.

Transfer Agent

The transfer agent for our common stock is Computershare.

Listing

Our common stock is listed on the NASDAQ Global Market under the symbol "IDIX." On October 13, 2008, the last reported sale price for our common stock on the NASDAQ Global Market was \$5.34 per share. As of October 8, 2008, we had approximately 62 stockholders of record.

Registration Rights

Subject to certain conditions and limitations, including the right of the underwriters of an offering to limit the number of shares included in such offering and our right to decline to effect such a registration if the anticipated aggregate offering price in such registration is below a minimum amount, the holders of approximately 34,775,120 shares of our common stock are entitled, at our expense, to cause us to register or participate in a registration by us under the Securities Act of shares of our common stock held by such holders if we propose to register any of our common stock. The holders include:

- Novartis and its affiliates; and
- certain other holders of our common stock, collectively referred to in this section as the preference holders, which include the selling stockholders, each of whom which were former holders of our convertible preferred stock.

In addition, pursuant to the amended and restated stockholders' agreement among us, Novartis, the selling stockholders and other preference holders, dated as of July 27, 2004, or the stockholders' agreement, Novartis, its affiliates and the preference holders will have registration rights, with regard to any shares of our capital stock they acquire pursuant to their respective rights under the stockholders' agreement.

Stockholders' Agreement

Under the terms of the stockholders' agreement, we:

- granted Novartis, its affiliates and the preference holders rights to cause us to register, under the Securities Act, the shares of common stock owned by such stockholders as described above under the caption "Registration Rights";
- agreed to use our reasonable best efforts to nominate for election as a director at least two designees of Novartis for so long as Novartis and its affiliates own at least 35% of our voting stock and at least one designee of Novartis for so long as Novartis and its affiliates own at least 19.4% of our voting stock; and
- granted Novartis approval rights over a number of corporate actions that we or our subsidiaries may take as long as Novartis and its affiliates continue to own at least 19.4% of our voting stock.

Novartis' Stock Purchase Rights

Novartis has the right to purchase, at par value of \$0.001 per share, such number of shares as is required to maintain its percentage ownership of our voting stock if we issue shares of common stock in connection with the acquisition or in-licensing of technology through the issuance of up to 5% of our common stock in any 24-month period. These purchase rights of Novartis remain in effect until the earlier of the date that Novartis and its affiliates own less than 19.4% of our voting stock or the date that Novartis becomes obligated to make contingent payments of \$357,000,000 to those holders of the our stock who sold shares to Novartis on May 8, 2003.

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Additionally, if we issue any shares of our capital stock, other than in certain situations, Novartis has the right to purchase such number of shares required to maintain its percentage ownership of our voting stock for the same consideration per share paid by others acquiring our stock in such transaction.

Limitation of Liability and Indemnification

Our restated certificate of incorporation, as amended, contains provisions permitted under the General Corporation Law of Delaware relating to the liability of directors. The provisions provide that our directors will not have personal liability for monetary damages for any breach of fiduciary duty as a director, except to the extent that the General Corporation Law of Delaware prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty. Further, our restated certificate of incorporation contains provisions to indemnify our directors and officers to the fullest extent permitted by the General Corporation Law of Delaware. We also maintain directors' and officers' liability insurance. We believe that these provisions will assist us in attracting and retaining qualified individuals to serve as directors.

Effects of Authorized but Unissued Stock

We have shares of common stock available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of the NASDAQ Global Market and our existing contractual arrangements with Novartis. We may utilize these additional shares for a variety of corporate purposes, including for future public offerings to raise additional capital or facilitate corporate acquisitions or for payment as a dividend on our capital stock. Moreover, Novartis' current ownership of 56.6% of our outstanding common stock could have the effect of making it more difficult for a third party to acquire, or could discourage a third party from seeking to acquire, a controlling interest in our company by means of a merger, tender offer, proxy contest or otherwise.

PLAN OF DISTRIBUTION

We may sell the securities being offered hereby in one or more of the following ways from time to time:

- through agents to the public or to investors;
- to one or more underwriters for resale to the public or to investors;
- in "at the market offerings," within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market, on an exchange or otherwise;
- directly to investors; or
- through a combination of these methods of sale.

We will set forth in a prospectus supplement the terms of the offering of securities, including:

- the name or names of any agents or underwriters;
- the purchase price of the securities being offered and the proceeds we will receive from the sale;
- any over-allotment options under which underwriters may purchase additional securities from us;
- any agency fees or underwriting discounts and other items constituting agents' or underwriters' compensation;
- the public offering price;
- any discounts or concessions allowed or reallocated or paid to dealers; and
- any securities exchanges on which such securities may be listed.

If underwriters are used in the sale, they will acquire the common stock for their own account and may resell the common stock from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of the sale. The obligations of the underwriters to purchase the common stock will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the common stock to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase

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all the shares of common stock offered by the prospectus supplement. We may change from time to time the public offering price and any discounts or concessions allowed or reallocated or paid to dealers.

We may sell our common stock directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of our common stock, and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, our agent will act on a best-efforts basis for the period of its appointment.

We may provide underwriters and agents with indemnification against civil liabilities related to this offering, including liabilities under the Securities Act, or contribution with respect to payments that the underwriters or agents may make with respect to these liabilities. Underwriters and agents may engage in transactions with, or perform services for, us in the ordinary course of business. We will describe such relationships in the prospectus supplement naming the underwriter and the nature of any such relationship.

Rules of the Securities and Exchange Commission may limit the ability of any underwriters to bid for or purchase shares of common stock before the distribution of the shares of common stock is completed. However, underwriters may engage in the following activities in accordance with the rules:

- *Stabilizing transactions* — Underwriters may make bids or purchases for the purpose of pegging, fixing or maintaining the price of the shares, so long as stabilizing bids do not exceed a specified maximum.
- *Over-allotments and syndicate covering transactions* — Underwriters may sell more shares of our common stock than the number of shares that they have committed to purchase in any underwritten offering. This over-allotment creates a short position for the underwriters. This short position may involve either “covered” short sales or “naked” short sales. Covered short sales are short sales made in an amount not greater than the underwriters’ over-allotment option to purchase additional shares in any underwritten offering. The underwriters may close out any covered short position either by exercising their over-allotment option or by purchasing shares in the open market. To determine how they will close the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market, as compared to the price at which they may purchase shares through the over-allotment option. Naked short sales are short sales in excess of the over-allotment option. The underwriters must close out any naked position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that, in the open market after pricing, there may be downward pressure on the price of the shares that could adversely affect investors who purchase shares in the offering.
- *Penalty bids* — If underwriters purchase shares in the open market in a stabilizing transaction or syndicate covering transaction, they may reclaim a selling concession from other underwriters and selling group members who sold those shares as part of the offering.

Similar to other purchase transactions, an underwriter’s purchases to cover the syndicate short sales or to stabilize the market price of our common stock may have the effect of raising or maintaining the market price of our common stock or preventing or mitigating a decline in the market price of our common stock. As a result, the price of the shares of our common stock may be higher than the price that might otherwise exist in the open market. The imposition of a penalty bid might also have an effect on the price of shares if it discourages resales of the shares.

If commenced, the underwriters may discontinue any of these activities at any time.

Our common stock is quoted on the NASDAQ Global Market. One or more underwriters may make a market in our common stock, but the underwriters will not be obligated to do so and may discontinue market making at any time without notice. We cannot give any assurance as to liquidity of the trading market for our common stock.

Any underwriters who are qualified market makers on the NASDAQ Global Market may engage in passive market making transactions in the common stock on the NASDAQ Global Market in accordance with Rule 103 of Regulation M, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock. Passive market makers must comply with applicable volume and

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price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded.

In compliance with guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

LEGAL MATTERS

The validity of the issuance of the securities offered by this prospectus will be passed upon for us by Wilmer Cutler Pickering Hale and Dorr LLP.

EXPERTS

The financial statements and management's assessment of the effectiveness of internal control over financial reporting (which is included in Management's Annual Report on Internal Control over Financial Reporting) incorporated in this Prospectus by reference to the Annual Report on Form 10-K for the year ended December 31, 2007 have been so incorporated in reliance on the report of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

7,248,936 Shares



Common Stock

Leerink Swann

August 5, 2009

