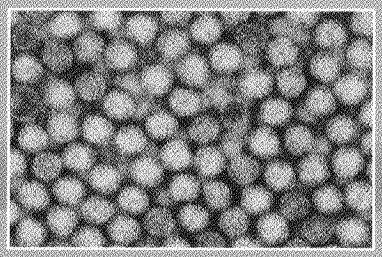
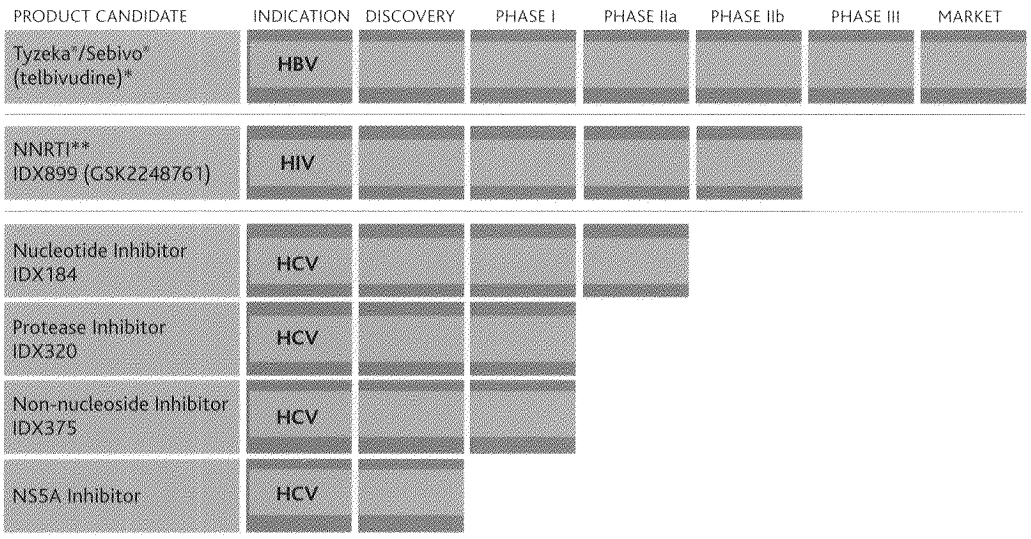


2009 ANNUAL REPORT

HCV combinations for the future

IDENIX PHARMACEUTICALS, INC.

pipeline



*Tyzeka®/Sebivo® was co-developed by Idenix and Novartis Pharma AG. Novartis has exclusive worldwide commercialization rights to Tyzeka®/Sebivo®.

**IDX899 is exclusively licensed to SmithKline Beecham Corporation doing business as GlaxoSmithKline (GSK).

IDENIX MILESTONES

1998 :: Idenix's founding **2001** :: First human results of telbivudine in hepatitis B patients **2003** :: Established collaboration with Novartis Pharma AG; Initiation of Phase III clinical trials for telbivudine **2004** :: Initial public offering **2006** :: United States approval for Tyzeka® (telbivudine) **2007** :: Approvals for Sebivo® (telbivudine) in principal markets outside of the U.S. **2008** :: Successful proof-of-concept study for IDX899; Submitted Investigational New Drug Application (IND) for IDX184 **2009** :: Secured licensing deal with GSK for IDX899; Successful proof-of-concept for IDX184; Submitted Clinical Trial Applications (CTAs) for IDX320 and IDX375

APRIL 9, 2010

DEAR SHAREHOLDERS,

Idenix accomplished a great deal in 2009, beginning with a major licensing deal with GlaxoSmithKline (GSK) for IDX899, now referred to as GSK2248761, a non-nucleoside reverse transcriptase inhibitor (NNRTI), for the treatment of HIV/AIDS. The GSK transaction allowed us to focus our resources on the advancement of candidates from three different hepatitis C virus (HCV) drug classes into clinical development. This was a key clinical goal we set out to achieve in 2009, and I am proud to say that we accomplished that goal.

In 2009, GSK made significant progress with GSK2248761, including the successful completion of long-term chronic toxicology and drug-drug interaction studies in healthy volunteers. We look forward to the planned initiation by GSK of a broad Phase IIb clinical program in both treatment-naïve and treatment-experienced HIV patients in 2010.

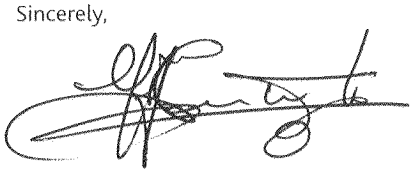
In HCV, we are evaluating our lead drug candidate, IDX184, a liver-targeted nucleotide polymerase inhibitor, in a Phase IIa clinical trial in combination with pegylated interferon and ribavirin in treatment-naïve HCV genotype 1-infected patients. We are pleased with the clinical progress of the IDX184 program, which has continued to demonstrate antiviral activity and safety in HCV-infected patients. In 2009, we filed CTAs for IDX320, an HCV protease inhibitor, and IDX375, an HCV non-nucleoside polymerase inhibitor. Both of these drug candidates have shown favorable pharmacokinetics and safety in Phase I clinical programs in healthy volunteers. We look forward to the further advancement of our HCV programs in 2010.

At Idenix, we believe that the future of HCV treatment is likely to include novel combinations of direct-acting antivirals (DAAs), which could eliminate the need for interferon-based therapies. The modest efficacy and side effect profile of pegylated interferon and ribavirin have limited the number of treated HCV patients. First-generation antivirals added to current treatment are expected to make an impact but we expect there will still be significant limitations. We believe that a true change in treatment will not occur until HCV-infected patients are able to receive an oral, convenient and safe combination regimen that provides high response rates and minimum risk of resistance. To achieve this new standard, we believe that optimal DAA regimens should combine agents with multi-genotypic coverage, distinct modes of action and complementary resistance profiles. While considerable additional research will be required, we believe that it is likely that at least three drugs from three different HCV drug classes will be required.

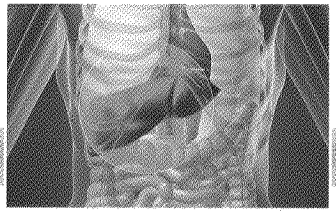
Our goal is to advance second-generation HCV drug candidates that will contribute to this transformation in treatment. With clinical candidates that span the major HCV drug classes, we believe Idenix is well positioned to advance a combination drug development strategy, both internally and with partners, to change the future HCV paradigm.

I would like to thank you, our shareholders, for your support and look forward to sharing with you our progress throughout the year. I would also like to thank our employees, board members and trusted advisors for their continued contributions to Idenix.

Sincerely,



Jean-Pierre Sommadossi, Ph.D.
Chairman and Chief Executive Officer



IDX320 is a non-covalent macrocylic HCV protease inhibitor with nanomolar potency and multi-genotypic coverage *in vitro*. IDX320 demonstrated tight binding to the enzyme, no inhibition of 9 human cellular proteases and limited potential for drug-drug interactions in preclinical studies. Favorable preclinical pharmacokinetic results support the potential for once-daily dosing in man. **IDX320 has demonstrated favorable pharmacokinetics and safety in a Phase I clinical trial conducted under a European CTA evaluating single and multiple ascending doses in healthy volunteers. If successful in the planned proof-of-concept study in HCV-infected patients, a Phase II combination clinical trial is expected to begin in 2010.**

IDX184 is a once-daily, oral HCV nucleotide polymerase inhibitor based on Idenix's proprietary liver-targeting technology. This technology enables the delivery of high levels of nucleoside triphosphate, the active form of the drug, in the liver, potentially maximizing drug efficacy and limiting systemic side effects. IDX184 has exhibited pan-genotypic activity and a high barrier to resistance in *in vitro* studies. IDX184 demonstrated antiviral activity and safety in a Phase I three-day proof-of-concept study for IDX184 in HCV-infected patients. **A Phase IIa clinical trial evaluating IDX184 in combination with pegylated interferon and ribavirin in treatment-naïve HCV genotype 1-infected patients is ongoing. Interim data for IDX184 have demonstrated robust antiviral activity and a favorable safety profile in this trial. Upon successful completion of the Phase IIa study, longer-term combination studies with IDX184 are planned.**

IDX375 is a novel palm-binding non-nucleoside HCV polymerase inhibitor that has demonstrated a favorable preclinical pharmacokinetic profile in several species, high liver to plasma concentrations in rodents, limited potential for drug-drug interactions and adequate safety in animal studies. Interim data from an ongoing single ascending dose Phase I clinical study in healthy volunteers evaluating the choline salt form of IDX375 have indicated a favorable pharmacokinetic and safety profile. **The Phase I program will continue with higher single and multiple doses of a free acid form of IDX375 in healthy volunteers due to improved stability of the drug product. A proof-of-concept study in HCV-infected patients is planned as part of the Phase I program.**

Protease inhibitor :: **IDX320**

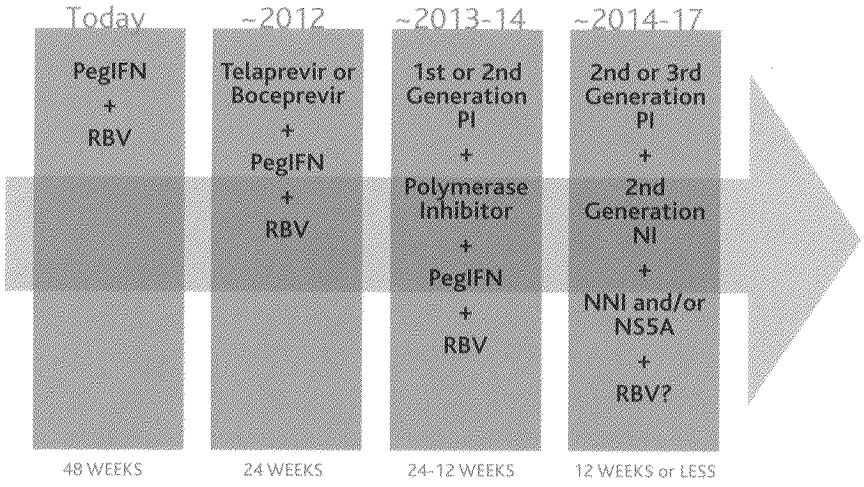
Nucleotide polymerase inhibitor :: **IDX184**

Non-nucleoside polymerase inhibitor :: **IDX375**

combination

The future paradigm in HCV treatment will be a combination of direct-acting antivirals from different drug classes with the goal of substantially improving cure rates for patients. Idenix is designing product candidates with profiles that would potentially enable use in these combination regimens. It is the company's goal to develop low dose, once- or twice-daily agents with broad genotypic activity and a low potential for drug-drug interaction. With a critical mass of drug candidates from the major HCV drug classes, Idenix hopes to play a role in the development of innovative combination HCV treatments.

THE HCV TREATMENT PARADIGM IS EXPECTED TO EVOLVE RAPIDLY



Source: Idenix Market Research

CURRENT HCV TREATMENT

Chronic hepatitis C is a life-threatening disease affecting the liver. The World Health Organization has estimated that approximately 170 million people worldwide are chronically infected with the hepatitis C virus (HCV) and an additional three to four million people are infected each year. The current treatment for patients infected with HCV is a 48-week course of pegylated interferon (PegIFN) and ribavirin (RBV). This treatment is typically poorly tolerated and results in a sustained viral response (SVR), which is essentially a cure, in only approximately 50 percent of patients infected with the most prevalent and difficult-to-treat strain of the virus, genotype 1. For the many patients that have failed treatment with PegIFN/RBV, SVR rates with retreatment of PegIFN/RBV are low. The need to improve response rates has led to the development of drug candidates which target different enzymes in the virus' life cycle, including nucleoside/nucleotide polymerase inhibitors (NI), non-nucleoside polymerase inhibitors (NNI), protease inhibitors (PI) and NS5A inhibitors.

FUTURE HCV TREATMENT PARADIGM

We expect that the HCV treatment paradigm will evolve rapidly over the next three to five years with continued development of direct-acting antivirals (DAAs) from these different drug classes. We believe that the first step in the treatment paradigm shift will include drugs, such as protease inhibitors or nucleoside polymerase inhibitors, added to PegIFN/RBV. These treatments could potentially increase SVR rates and may also reduce the duration of treatment for patients.

The next significant step in the paradigm shift will occur when interferon and/or ribavirin is eliminated from treatment and patients could receive an all-oral DAA combination regimen. This approach would expand the treatable HCV population by including those patients who cannot be treated with interferon-based therapies or those for whom existing treatment regimens have been ineffective. The combination of two or more direct-acting HCV antiviral agents, particularly agents directed against different HCV targets, could potentially lead to a more potent inhibition of HCV replication and to a better suppression of the emergence of drug resistance. Nucleosides/nucleotides and protease inhibitors could be the preferred backbone in a combination regimen due to distinct modes of action, complementary resistance profiles and broad genotypic activity. We believe it is likely that at least a triple combination of direct-acting antivirals will be needed for this goal to be achieved. Potent non-nucleosides and NS5A inhibitors could be the third or fourth component of a DAA combination regimen.

COMBINATION THERAPY

Idenix is building a pipeline of HCV drug candidates with a research and development program focused on each of the major HCV drug classes. With clinical candidates from three different classes, we believe Idenix will have the tools to design DAA combinations – within Idenix but also with other companies. We believe that the successful DAA combinations will be those that can significantly increase SVR rates with improved safety profiles and convenience and, most importantly, patients with hepatitis C are expected to benefit if this goal in HCV treatment is realized.

STOCKHOLDER INFORMATION

BOARD OF DIRECTORS

Jean-Pierre Sommadossi, Ph.D.
Founder, Chairman of the Board and
Chief Executive Officer
Idenix Pharmaceuticals, Inc.

Charles W. Cramb
Vice Chairman of the Board
Chief Financial and Strategic Officer
Avon Products, Inc.

Wayne T. Hockmeyer, Ph.D.
Former Chairman of the Board of Directors
MedImmune, Inc.

Thomas R. Hodgson
Former President and
Chief Operating Officer
Abbott Laboratories

Tamar D. Howson
Partner
JSB-Partners

Robert Pelzer
President and Chief Executive Officer
Novartis Corporation

Denise Pollard-Knight, Ph.D.
Head of Nomura Phase4 Ventures

Steven Projan, Ph.D.
Vice President, Global Head of
Infectious Diseases
Novartis Institute for Biomedical Research

Anthony Rosenberg
Head of Business Development
and Licensing
Novartis Pharma AG

EXECUTIVE TEAM

Jean-Pierre Sommadossi, Ph.D.
Founder, Chairman and
Chief Executive Officer

Ronald C. Renaud, Jr.
Chief Financial Officer and Treasurer

Paul J. Fanning
Senior Vice President, Human Resources

Douglas L. Mayers, M.D.
Executive Vice President and
Chief Medical Officer

David N. Standring, Ph.D.
Executive Vice President, Biology

John F. Weidenbruch
Executive Vice President, General Counsel
and Secretary

ANNUAL MEETING

The Annual Meeting of the Stockholders will be held on Thursday, June 3 at 9 a.m. Eastern Daylight Time, at the offices of Wilmer Cutler Pickering Hale and Dorr LLP, 60 State Street, Boston, Massachusetts.

TRANSFER AGENT

Computershare Trust Company, N.A.
250 Royall Street
Canton, Massachusetts 02021
781-575-3400

OUTSIDE COUNSEL

Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

PricewaterhouseCoopers LLP
125 High Street
Boston, Massachusetts 02110

MARKET INFORMATION

Idenix's common stock trades on the NASDAQ Global Market under the ticker symbol **IDIX**.

IDENIX CONTACT

Teri Dahlman
Senior Manager, Corporate Communications
dahlman.teresa@idenix.com

CORPORATE HEADQUARTERS

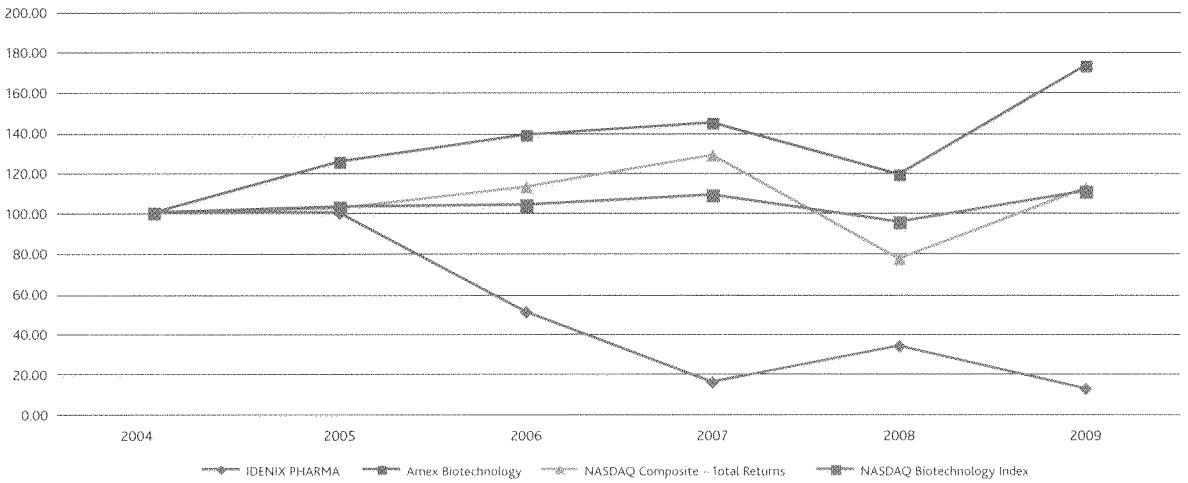
Idenix Pharmaceuticals, Inc.
60 Hampshire Street
Cambridge, Massachusetts 02139

COMPARATIVE STOCK PERFORMANCE GRAPH

Comparison of 5 Year Cumulative Total Return

Assumes Initial Investment of $100

December 2009



This comparative stock performance graph compares the cumulative stockholder return on our common stock for the five-year period from December 31, 2004 through December 31, 2009 with the cumulative total return on (i) the American Stock Exchange, or AMEX, Biotechnology Index, (ii) the NASDAQ Stock Market (U.S. Companies), or the "NASDAQ Composite Index", and the (iii) the NASDAQ Biotech Index. The graph assumes that $100 had been invested in each of our common stock and these three indexes on December 31, 2004 and that all dividends were reinvested.

www.IDENIX.com

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report contains 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, as amended, concerning our business, operations and financial condition. All statements other than statements of historical facts included in this Annual Report may be deemed as forward-looking statements. Without limiting the foregoing, "expect", "anticipate", "intend", "may", "plan", "believe", "seek", "estimate", "projects", "will", "would" and similar expressions or express or implied discussions regarding potential new products or regarding future revenues from such products, potential future expenditures or liabilities or by discussions of strategy, plans or intentions are also intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Because these forward-looking statements involve known and unknown risks and uncertainties, actual results, performance or achievements could differ materially from those expressed or implied by these forward-looking statements for a number of important reasons, including those discussed under "Risk Factors", "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in our Annual Report on Form 10-K for the year ended December 31, 2009, as filed with the U.S. Securities and Exchange Commission on March 9, 2010 (the "Annual Report on Form 10-K"). In particular, management's expectations could be affected by, among other things, uncertainties involved in the development of new pharmaceutical products, including unexpected clinical trial results; unexpected regulatory actions or delays or government regulation generally; our ability to obtain or maintain patent or other proprietary intellectual property protection; competition in general; government, industry and general public pricing pressures; and uncertainties regarding necessary levels of expenditures in the future. There can be no guarantee that development of any drug candidates described will succeed or that any new products will obtain necessary regulatory approvals required for commercialization or otherwise be brought to market. Similarly, there can be no guarantee that we or one or more of our current or future products, if any, will achieve any particular level of revenue.

You should be aware that the occurrence of any of the events described under "Risk Factors" and elsewhere in the Annual Report on Form 10-K could substantially harm our business, results of operations and financial condition and that upon the occurrence of any of these events, the price of our common stock could decline.

We cannot guarantee any future results, levels of activity, performance or achievements. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described in this Annual Report as anticipated, believed, estimated or expected. The forward-looking statements contained in this Annual Report represent our expectations as of the date of this Annual Report (unless another date is indicated) and should not be relied upon as representing our expectations as of any other date. While we may elect to update these forward-looking statements, we specifically disclaim any obligation to do so, even if our expectations change.

Information contained within the "Stockholder Information" section of this Annual Report is as of March 31, 2010.

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Idenix
PHARMACEUTICALS