Innovative **Ideas** to Treat Disease in a New **Era** of Targeted Immune Therapy

idera

PHARMACEUTICALS

ANNUAL REPORT 2005

Today, Idera is focused on development of targeted immune therapy for a broad range of diseases, and is poised to capitalize on the promise of exciting therapeutic opportunities.

TO OUR STOCKHOLDERS:

2005 was a pivotal year for our Company in which we accomplished several defining milestones, including the creation of a new identity for our Company as Idera Pharmaceuticals, Inc. Our own research and recent industry and scientific developments validate our belief in the promise of targeted immune therapy. We believe that targeted immune therapy will play an important role in treating various diseases including cancer, infectious diseases, allergy, and asthma.

Our rationale for focusing on targeted immune therapy is supported by our extensive experience gained through the application of DNA chemistry to drug discovery. Our strategy is reinforced by the hundreds of publications in scientific and trade journals that describe the critical role of Toll-like receptors (TLRs) in immunity and by our early clinical experience with antisense technology. We have designed novel DNA-based compounds that interact with specific members of the TLR family and produce a spectrum of immune responses.

Major international pharmaceutical companies signed license or collaboration agreements in 2005 to gain access to products or programs based on TLR modulation for various disease indications, including oncology, infectious disease, and asthma/allergy. We participated in this licensing activity through an alliance with Novartis.

**In 2005, we completed our transition to a company focused on developing novel therapeutics using Toll-like receptors.**

In 2005, we aligned our human and capital resources to support the discovery, development, and partnering of our proprietary TLR-based programs and products. We put strategy, science, clinical progress and business development together to create value based on our core competency in DNA chemistry.

**Strategic focus.** In 2005, we completed our transition to a company focused on developing novel therapeutics using TLRs as the basis for targeted immune therapy. TLRs are the body's first responders to a variety of signals that could indicate a disease process. Our DNA/RNA-based drug candidates show promise for modulating immune responses through TLRs, with our initial focus being compounds that activate an immune response through TLR9. We are also working on agents that target other TLRs, including TLR7 and TLR8, and agents that block the activity of TLR9.

**Scientific achievements.** Idera's approach to developing TLR-targeted therapeutics stems from our leadership position in DNA chemistry, which has allowed us to create proprietary, differentiated classes of drug candidates that interact with this important family of receptors. During the past year we made important scientific advances and identified new TLR-based drug candidates which we are moving through various stages of preclinical evaluation. Additionally, we continued to build our intellectual property position in the TLR arena, and we now have 147 U.S. and worldwide patents and patent applications covering TLRs.

**Clinical progress.** Our clinical programs show the progress Idera has made in translating scientific expertise into drug development. We are moving forward in testing promising new therapies for the treatment of cancer and infectious diseases.

In oncology, we have made significant progress with our lead cancer compound IMO-2055, a novel, proprietary compound derived entirely from our in-house discovery program. Our clinical collaborators from the Lombardi Comprehensive Cancer Center at Georgetown University Medical Center presented Phase 1 refractory cancer patient data at the 2005 American Society of Clinical Oncology annual meeting demonstrating the treatment was well tolerated and exhibited evidence of immunological activity. We expanded enrollment in our ongoing Phase 2a monotherapy clinical trial for the treatment of recurrent renal cell carcinoma. We are working towards completing enrollment in the Phase 2a trial by mid 2006 and look forward to reporting data on IMO-2055 for renal cancer later this year.

In addition, we initiated a Phase 1/2 study of IMO-2055 in combination with standard chemotherapy agents for the treatment of non-small cell lung cancer, the most common form of lung cancer.

Our drug discovery platform has delivered another novel chemical entity for potential application in the treatment of infectious disease. Based on successful pre-clinical proof-of-concept studies, we have identified a lead candidate for potential application in the treatment of hepatitis C. We are advancing this candidate under the name IMO-2125 towards planned clinical trials in early 2007.

**Strategic alliance.** Our technology has broad applications and our know-how enables us to develop multiple drug candidates to drive collaborations with larger biotechnology and pharmaceutical companies. In May 2005, we established a collaboration with Novartis which involves studies of compounds that modulate immune responses through TLR9 for potential treatment of allergy and asthma. We received $4 million as an upfront payment from Novartis. If we are successful through various stages of discovery, development, and commercialization, Idera could receive up to $132 million in milestone payments, in addition to royalties on net sales of products.

**In May 2005, we established a collaboration with Novartis which involves studies of compounds that modulate immune responses through TLR9 for potential treatment of allergy and asthma.**

**Business and financial improvements**. As we continue to move the Company forward on all fronts, we also have brought new talent to our management team to maintain and expand our momentum. We were very pleased to add Robert W. Karr, M.D., to our management team as President in December 2005. Dr. Karr is an immunologist with an established career in academics and in the pharmaceutical industry. He was most recently Senior Vice President of Global Strategy at Pfizer Inc.

In March 2006 we secured approximately $19.5 million in funding from sources that share our vision of targeted immune therapy based on TLRs. Half of the funding has come from three well-respected biotechnology institutional investors, and the other half has been made available to the Company by existing long-term investors, subject to meeting certain conditions. Together, this funding should support operations midway through 2007.

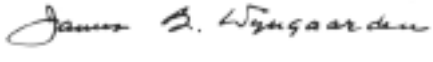
**Thoughts about the future.** We believe our Company is positioned to be a leader in TLR-based therapeutics and that our proprietary technology gives us a unique capability to synthesize novel chemical compounds. With the wide range of structural variations enabled by our technology, we have the flexibility to create a variety of immune system responses. We are discovering and developing drug candidates to treat multiple conditions and diseases, and we expect to report additional clinical results in late 2006 or early 2007. The strength of our technology platform and its broad applicability make us optimistic about additional corporate alliances.

We continue to build the scientific, clinical and business bases to create value for our stockholders and employees. Today, Idera is focused on development of targeted immune therapy for a broad range of diseases, and is poised to capitalize on the promise of exciting therapeutic opportunities.

We wish to thank our employees, stockholders, collaborators, and the physicians and patients participating in our clinical trials for their continuing support in our efforts to realize the potential of targeted immune therapy.

Sincerely,

Sudhir Agrawal, D.Phil.
Chief Executive Officer and
Chief Scientific Officer



James B. Wyngaarden, M.D.
Chairman

# Toll-Like Receptor Programs

| CANDIDATE | INDICATION | RESEARCH | PRECLINICAL | PHASE 1 | PHASE 2 |
|---|---|---|---|---|---|
| **Agonists of TLR9** | | | | | |
| IMO-2055 | Renal Cell Cancer | | | | |
| IMO-2055 + Chemo | Non-Small Cell Lung Cancer | | | | |
| IMO-2055 + Mabs | Cancer | | | | |
| IMO-2125 | Hepatitis C (pre-IND lead) | | | | |
| TLR9 Agonists | Asthma/Allergy (IMO candidates) | | *Under Alliance* | *with Novartis* | |
| **Other TLR Programs** | | | | | |
| TLR9 Antagonists | Autoimmune Diseases | | | | |
| TLR7 Agonists | Antiviral | | | | |
| TLR7/8 Agonists | Antiviral | | | | |

*IMO: Immune Modulatory Oligonucleotide*

## Toll-Like Receptors: First Line of Defense

TLRs are proteins that form a first line of defense for the immune system. They are a part of the innate immune system and developed very early in evolution. At least ten different TLRs have been identified. Each one recognizes a different set of chemical signals that indicates the possibility of a disease process and has distinctive effects on the immune system.

TLRs were discovered only in the last decade. Researchers have identified their critical role in the immune system even more recently. Drug candidates that work through TLRs exploit natural functions of the immune system and have potential applications across a wide range of diseases, including cancer, allergies and asthma, infectious disease, and autoimmune disease.

**Idera's Expertise Applied to TLRs**

Idera has more than a decade of experience with the application of DNA chemistry to drug research. This experience allows us to work efficiently and effectively on TLRs.

We have novel drug candidates in various stages of development.

**Clinical Program.** Our most advanced drug development candidate is designed to activate one specific Toll-like receptor, TLR9. IMO-2055 is in Phase 2 clinical testing for the treatment of renal cell cancer.

**Preclinical Lead Candidate.** We have another TLR9 agonist, IMO-2125, in preclinical development. We intend to file an IND application for IMO-2125 in the treatment of hepatitis C, because IMO-2125 induces high levels of natural interferon-alpha in appropriate preclinical models. Recombinant interferon-alpha products are widely used in hepatitis C and other viral diseases.

**Research Alliance.** We have additional TLR9 agonist compounds under evaluation in our Novartis alliance for use in asthma and allergies.

**Early-Stage Pipeline.** Our experience with the application of DNA chemistry to drug research allows us to work on other TLRs that recognize different types of DNA/RNA structures. Our earlier-stage pipeline programs include agents that activate TLR7 and TLR8 and also agents that block the activity of TLR9.

IDERA PHARMACEUTICALS, INC.

## CONSOLIDATED CONDENSED STATEMENTS OF OPERATIONS

*(in thousands, except per share data)*

| | YEARS ENDED DECEMBER 31 | |
|---|---|---|
| | 2005 | 2004 |
| Revenues | $ 2,467 | $ 942 |
| Operating Expenses | | |
| Research & Development | 12,687 | 10,305 |
| General & Administrative | 3,503 | 4,273 |
| Stock-based Compensation | 100 | (713) |
| Total Operating Expenses | 16,290 | 13,865 |
| (Loss) from Operations | (13,823) | (12,923) |
| Investment Income | 369 | 217 |
| Interest Expense | (252) | (29) |
| Net (Loss) | (13,706) | (12,735) |
| Accretion of Preferred Stock Dividends | — | (2,676) |
| Net (Loss) Applicable to Common Stockholders | $ (13,706) | $ (15,411) |
| Basic and Diluted Net (Loss) Per Common Share Applicable to Common Stockholders | $ (0.12) | $ (0.16) |
| Shares Used In Computing Basic and Diluted Net (Loss) Per Common Share | 111,087 | 98,914 |

## CONSOLIDATED CONDENSED BALANCE SHEET DATA

*(in thousands)*

| | AT DECEMBER 31 | | |
|---|---|---|---|
| | 2005 | Pro Forma 2005 (Unaudited) | 2004 |
| Cash, Cash Equivalents and Investments | $ 8,376 | $ 16,426 | $ 14,413 |
| Other Assets | 1,613 | 1,613 | 978 |
| Total Assets | $ 9,989 | $ 18,039 | $ 15,391 |
| Current Liabilities | $ 4,052 | $ 4,052 | $ 1,858 |
| 4% Notes Payable | 5,033 | 5,033 | — |
| Non-current Liabilities and Deferred Revenue | 1,239 | 1,239 | 764 |
| Total Stockholders' Equity | (335) | 7,715 | 12,769 |
| Total Liabilities & Stockholders' Equity | $ 9,989 | $ 18,039 | $ 15,391 |

## BOARD OF DIRECTORS

James B. Wyngaarden, M.D.
Chairman, Idera Pharmaceuticals, Inc.
Former Director, Human Genome Organization
Former Director, National Institutes of Health

Youssef El Zein
Vice Chairman, Idera Pharmaceuticals, Inc.
Chairman and Chief Executive Officer,
Pillar Investment Limited

Sudhir Agrawal, D. Phil.
Chief Executive Officer and
Chief Scientific Officer, Idera Pharmaceuticals, Inc.

Robert W. Karr, M.D.
President, Idera Pharmaceuticals, Inc.

C. Keith Hartley
President
Hartley Capital Advisors

William S. Reardon, CPA
Retired Audit Partner
PricewaterhouseCoopers, LLP

Alison Taunton-Rigby, Ph.D., O.B.E.
Founder, President, Chief Executive Officer and Director
RiboNovix, Inc.

Paul C. Zamecnik, M.D.
Professor of Oncologic Medicine Emeritus
Harvard Medical School
Senior Scientist
Massachusetts General Hospital

## MANAGEMENT

Sudhir Agrawal, D. Phil.
Chief Executive Officer and
Chief Scientific Officer

Robert W. Karr, M.D.
President

Robert G. Andersen
Chief Financial Officer,
Vice President - Operations,
Treasurer and Secretary

Timothy M. Sullivan, Ph.D.
Vice President, Development Programs

Ekambar R. Kandimalla, Ph.D.
Senior Director, Research

David M. Lough, Ph.D.
Director, Business Development

Steven J. Ritter, Ph.D., JD
Intellectual Property Counsel

Frank Whalen
Controller

## STOCKHOLDERS' MEETING

The 2006 Annual Meeting of Stockholders will be held at the Hotel @ MIT, 20 Sidney Street, Cambridge, MA on June 7, 2006 at 10:00 a.m A notice of the meeting, proxy statement and proxy voting card have been mailed to stockholders with this Annual Report.

## INVESTOR RELATIONS

Additional copies of this Annual Report, including the Company's Annual Report on Form 10-K for the year ended December 31, 2005, as filed with the Securities and Exchange Commission, are available upon request to:

Investor Relations
Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, MA 02139

Company information is available at:
www.iderapharma.com or 617-679-5500

## REGISTRAR & TRANSFER AGENT

Mellon Investor Services LLC
480 Washington Boulevard
Jersey City, NJ 07310-1900
Web: www.melloninvestor.com

| | |
|---|---|
| Toll Free Number: | 1-800-288-9541 |
| TDD Hearing Impaired: | 1-800-231-5469 |
| Foreign Shareowners: | 1-201-680-6578 |
| TTD Foreign Shareowners: | 1-201-680-6610 |

## OUTSIDE LEGAL COUNSEL

WilmerHale
60 State Street
Boston, MA 02109

## INDEPENDENT AUDITORS

Ernst & Young, LLP
200 Clarendon Street
Boston, MA 02116

## COMMON STOCK SYMBOL

AMEX: IDP

Any statements that we may make in this Annual Report about future expectations, plans and prospects for the Company constitute forward-looking statements for purposes of the safe harbor provisions under The Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those indicated by these forward-looking statements as a result of various important factors, including the risks set forth under the caption "Risk Factors" in Idera's Annual Report on Form 10-K for the year ended December 31, 2005. Idera disclaims any intention or obligation to update any forward-looking statements.

FASSINO/DESIGN


Idera Pharmaceuticals, Inc.
345 Vassar Street
Cambridge, MA 02139
Company information is available at:
www.iderapharma.com or 617-679-5500