



the power of vision

2005 Annual Report

MOMENTA

“Discovery consists of seeing what everybody has seen and thinking what nobody has thought.”

— ALBERT SZENT-GYÖRGYI,
Nobel Prize-winning biochemist

Complex sugars play a fundamental role in cellular function and disease. While scientists have long recognized the importance of sugars, their structural complexity represented a fortress that traditional analytical techniques could not penetrate. Many scientists thought the structural secrets of complex sugars could not be unlocked.

The founders of Momenta Pharmaceuticals saw things differently — and approached the challenge with a novel perspective. The result is a revolutionary technology that spurred the creation of a vibrant biotechnology company with the potential to make a major impact on the pharmaceutical industry and medicine for millions of people.

That's the power of vision.

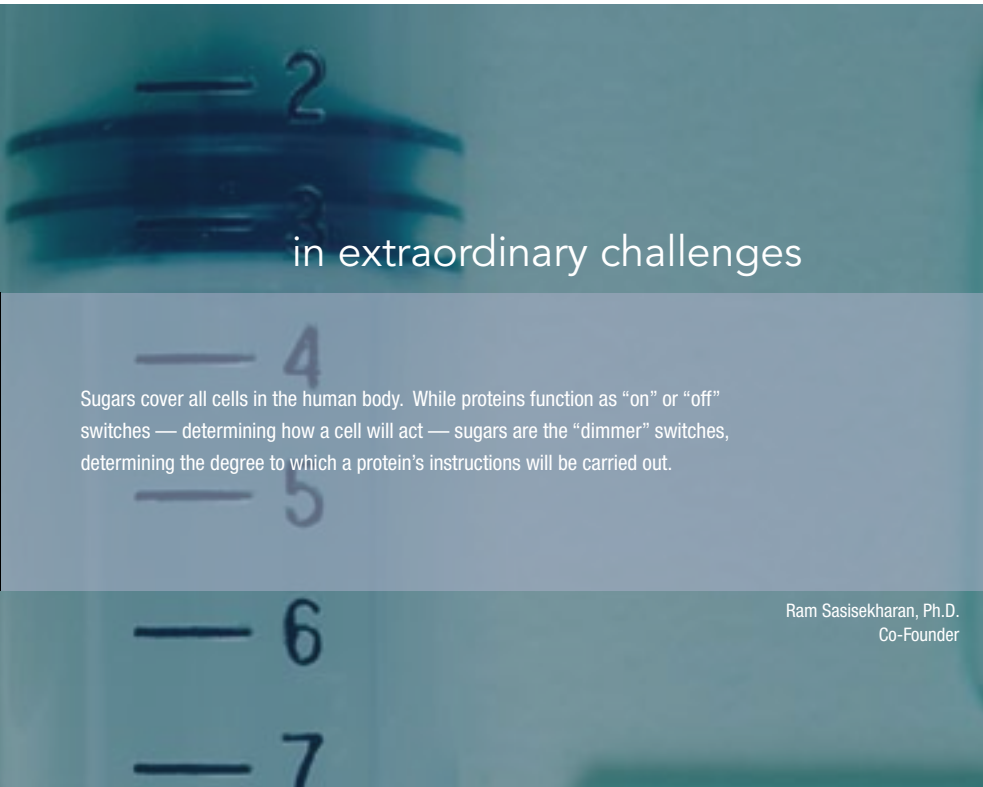
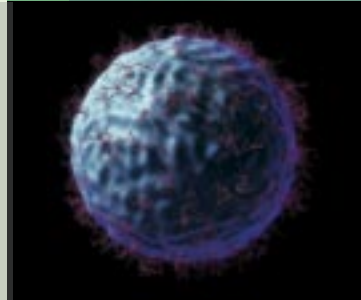
“It’s impossible.” That’s what Momenta founders Ram Sasisekharan and Ganesh Venkataraman heard from others whenever they talked about sequencing — identifying and mapping — the chemical components of complex sugars. However, the two undertook the challenge by combining several scientific disciplines, which enabled them to unlock the “black box” of sugars and reveal their dramatic potential.



vision sees opportunity



Ganesh Venkataraman, Ph.D.
Co-Founder



in extraordinary challenges

Sugars cover all cells in the human body. While proteins function as “on” or “off” switches — determining how a cell will act — sugars are the “dimmer” switches, determining the degree to which a protein’s instructions will be carried out.



Ram Sasisekharan, Ph.D.
Co-Founder

Sugars cover the surface of all cells — and most proteins. It has been long known that sugars are ubiquitous in the human body, but their biological roles have not been well understood. So Sasisekharan, a biologist, and Venkataraman, an engineer, asked an important question: “If we could define the exact molecular structure of sugars and how they interact in the body, wouldn’t that profoundly affect our understanding of diseases and how drugs can be developed to treat them?” They determined there was power in attacking the problem of sequencing in a novel way: combining the perspectives of biology and engineering. Their unconventional approach created the technology that is the foundation of Momenta.

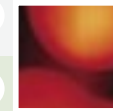
vision blazes new trails



DUPLICATE

Momenta is developing technology-enabled generic versions of complex drugs.

Momenta's technology allows it to thoroughly analyze the molecular structure of complex drugs that cannot be characterized using traditional techniques, and then develop generic versions for the first time. We are focused on enabling a new class of generic drugs that we believe will meet the FDA's requirements for sameness. Momenta's lead product candidate, M-Enoxaparin, is a generic version of Lovenox[®], a low-molecular-weight heparin (LMWH), with U.S. sales of approximately \$1.6 billion.



RE-ENGINEER

Momenta is creating next-generation versions of drugs containing sugars.

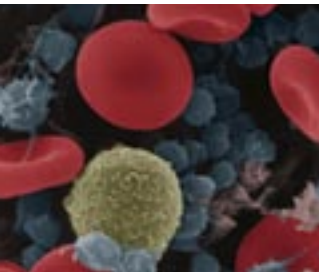
Momenta studies the biological activity of the chemical structures in drugs, and then re-engineers them for better outcomes. This includes improving such factors as efficacy, safety and bioavailability. Its first re-engineered product candidate is M118, which is a heparin designed specifically to address unmet needs in acute coronary syndromes (ACS). The Company's drug delivery program is focused on developing an approach to improve the pulmonary transport of large-molecule drugs by exploiting natural mechanisms of sugars.



CREATE

Momenta is researching new drugs that contain complex sugars.

Momenta is exploring the roles of complex sugars in biological processes and the pathways of diseases. The Company's initial focus is in oncology, where Momenta scientists are investigating these sugars' broad potential as therapeutic agents to prevent and treat cancers. These efforts could help to open a new frontier for drug development and treatment of disease based on a completely different approach, which is very much needed for chronic diseases.



vision creates value ... today and tomorrow



Blood is critical for sustaining life. However, in some circumstances, blood can form dangerous clots in the veins and arteries that can be life-threatening. Two of Momenta's most advanced product candidates, M-Enoxaparin and M118, each address separate segments of the market for anticoagulants.



Momenta's lead product candidates include M-Enoxaparin and M118.

Both M-Enoxaparin and M118 are enabled by Momenta's unique technology, address large markets, and have the potential to be significant baseline therapies in their primary indications. To develop M-Enoxaparin, Momenta thoroughly characterized Lovenox[®], a leading anticoagulant for patients with deep vein thrombosis (DVT), and developed a process to manufacture a technology-enabled generic version. The Company believes its technology gives it a competitive advantage in addressing the FDA's requirements for thorough characterization.

M118 was engineered to have multiple improved properties over currently available heparins to better address the needs of the ACS market. In addition to a potential for greater efficacy, M118 was designed with the properties of reversibility and monitorability in order to maximize its clinical flexibility. The Company expects to file an Investigational New Drug (IND) application for M118 with the FDA and then begin clinical trials. M118 represents Momenta's first novel product candidate.



< Momena Corporate Officers

Front:

Alan L. Crane, Chief Executive Officer

Back, left to right:

Ganesh Venkataraman, Ph.D., Co-Founder and Senior Vice President, Research

Steven B. Brugger, Senior Vice President, Strategic Business Operations

Richard P. Shea, Vice President, Chief Financial Officer

Susan K. Whoriskey, Ph.D., Vice President, Licensing and Business Development

John E. Bishop, Ph.D. (not pictured), Vice President, Pharmaceutical Sciences and Manufacturing

vision becomes reality

To Our Shareholders:

Momena is pursuing a very special opportunity — to improve the way we treat disease through a better understanding of sugars. We have a business model that offers potential for creating near-term revenue — through innovations such as technology-enabled generics — before traditional biotech drug development would typically yield financial returns. We conduct high-quality scientific work — with broad application to complex sugars and other complex drugs. And we share a relentless drive to overcome challenges. Each of these factors contributed to a very successful 2005.

Our innovative business model means we are creating near-term revenue opportunities through technology-enabled generics, even as we pursue the promise of novel drugs with significant long-term potential. This unconventional business model is one of the reasons why investors were attracted to our successful follow-on stock offering in July 2005, when we raised \$122.3 million by issuing 4.8 million shares. In spite of this significant increase in capital resources, we remain committed to a disciplined approach to evaluating and managing our development

efforts — investing in programs that we believe offer the best return on investment.

The high quality of our science is evidenced by the Abbreviated New Drug Application (ANDA) for M-Enoxaparin, which was submitted to the FDA in August 2005. M-Enoxaparin is the technology-enabled generic version of the branded drug Lovenox®, which many — including the developer — believe cannot be adequately analyzed and duplicated. By applying our breakthrough technology, we believe our scientists understand unprecedented details of this drug's chemical structure, and we have the potential to meet the FDA's requirements for thorough characterization.

Our culture — that challenge creates opportunity — permeates everything at Momena. We truly believe that every obstacle represents an opportunity. This is why we continue to push the limits of our technology and apply it to new challenges. For example, in the coming year, we are focused on sequencing other complex mixture drugs and glycoproteins.

Our commitment to overcoming challenges also spurs our approach to creating improved and novel drugs. We have made enormous progress in our efforts to advance M118 into clinical development. In our preclinical drug delivery program, we are investigating a natural mechanism of sugars to transport drugs — such as therapeutic proteins — through the lungs and into the bloodstream, creating the potential for injectable drugs to be delivered non-invasively.

Our goal is to become a leading biotech company within the next five years. We believe Momena has the right technology, the right people, and the right opportunities to make this happen. This is an incredibly exciting time for our Company, and we are glad to have you share it with us.

Alan L. Crane
Chief Executive Officer
May 11, 2006

investor information

Corporate Information

Corporate Offices

Momenta Pharmaceuticals, Inc.
675 West Kendall Street
Cambridge, MA 02142
Tel: 617-491-9700
Fax: 617-621-0431
www.momentapharma.com

Investor Relations

Michael A. Lawless
Senior Director, Investor Relations
info@momentapharma.com
617-491-9700

Transfer Agent

American Stock Transfer
& Trust Company
59 Maiden Lane – Plaza Level
New York, NY 10038
212-936-5100

Independent Auditors

Ernst & Young LLP
200 Clarendon Street
Boston, MA 02116
617-266-2000

Legal Counsel

Wilmer Cutler Pickering
Hale and Dorr LLP
60 State Street
Boston, MA 02109
617-526-6000

Executive Team

Alan L. Crane

Chief Executive Officer

John E. Bishop, Ph.D.

Vice President, Pharmaceutical
Sciences and Manufacturing

Margaret Blout

Director, Human Resources

Steven B. Brugger

Senior Vice President,
Strategic Business Operations

Barbara J. Rosengren

Vice President, Strategic
Product Development

Richard P. Shea

Vice President,
Chief Financial Officer

Lisa Carron Shmerling, Esq.

Vice President, Legal Affairs

Ganesh Venkataraman, Ph.D.

Co-Founder and Senior
Vice President, Research

Susan K. Whoriskey, Ph.D.

Vice President, Licensing
and Business Development

Stock Listing

Momenta is traded on the
NASDAQ National Market
under the symbol MNTA. As
of March 1, 2006, there were
approximately 63 holders of
record of our common stock,
which does not include stock-
holders whose common stock
is held in street name.

Board of Directors

Peter Barrett, Ph.D.

Chairman of the Board
Senior Principal, Atlas Venture

John K. Clarke

Managing General Partner,
Cardinal Partners LP

Alan L. Crane

Chief Executive Officer,
Momenta Pharmaceuticals, Inc.

Marsha H. Fanucci

Senior Vice President and CFO,
Millennium Pharmaceuticals, Inc.

Peter Barton Hutt, LL.B., LL.M.

Former Chief Counsel,
Food and Drug Administration

Robert S. Langer, Jr., Sc.D.

MIT Professor and
Momenta Co-Founder

Stephen T. Reeders, D.M.

Chief Executive Officer,
MVM Life Science Partners

Ram Sasisekharan, Ph.D.

MIT Professor and
Momenta Co-Founder

Bennett M. Shapiro, M.D.

Former EVP/Head of Research,
Merck & Co.

Christoph H. Westphal, M.D., Ph.D.

President and CEO,
Sirtris Pharmaceuticals, Inc.



www.momentapharma.com

Statements contained or incorporated by reference in this Annual Report that are not based on historical facts are “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Exchange Act. These forward-looking statements regarding future events and our future results are based on current expectations, estimates, forecasts and projections, and the beliefs and assumptions of our management. Forward-looking statements may be identified by the use of forward-looking terminology such as “may,” “believe,” “could,” “will,” “expect,” “should,” “estimate,” “anticipate,” “would,” “continue” or similar terms, variations of such terms or the negative of those terms. We undertake no intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

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Momenta Pharmaceuticals, Inc.

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Cambridge, MA 02142

Tel: 617-491-9700

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