

PIONEERS IN MEDICINE. PARTNERS IN CARE.

AT-A-GLANCE

As of August 6, 2009

NASDAQ: MIPI

Share price: \$6

52 week price range: \$8.90 - \$1.15

Shares outstanding: 25 million

Market Cap: \$150 million

Molecular Medicine Enables Visualization, Treatment and Monitoring of Disease at the Molecular Level

Molecular Imaging Radiopharmaceuticals enable early detection, appropriate staging and monitoring of disease.

Candidates: Zemiva and Trofex

Molecular Radiotherapeutics have the potential to improve safety and efficacy of cancer therapy.

Candidates: Azedra, Onalta, and Solazed

CORPORATE OVERVIEW

Molecular Insight Pharmaceuticals Inc. is a biopharmaceutical company focused on the discovery and development of targeted molecular imaging and therapeutic radiopharmaceuticals in the emerging field of molecular medicine. These novel radiopharmaceuticals will provide important improvements in disease detection and staging and enable the delivery of radiation therapy to widespread metastatic cancers. The Company, which seeks to advance healthcare for patients with life-threatening diseases, has focused the initial applications of its proprietary technologies in the areas of oncology and cardiology.

INVESTMENT HIGHLIGHTS

- Product pipeline with clinical-stage candidates that address large and underserved market opportunities in the rapidly emerging field of molecular medicine
 - Zemiva targets acute cardiac ischemia detection in the emergency department setting.
 - Trofex targets metastatic prostate cancer for improved detection and staging.
 - Azedra and Onalta target refractory metastatic neuroendocrine cancers.
 - Solazed targets Stage III/IV malignant metastatic melanoma.
- Proprietary platform technologies and scientific expertise continue to drive technological advancement and fuel pipeline
- Strong financial position to drive development and create value
 - Available cash should enable adequate liquidity through 2010.

PIPELINE OF INNOVATIVE MOLECULAR IMAGING RADIOPHARMACEUTICALS AND TARGETED RADIOTHERAPEUTICS

Product Candidates	Indication	Development Phase				
		Discovery	Preclinical	Phase 1	Phase 2	Phase 3
IMAGING	Zemiva™	[Progress bar from Discovery to Phase 2] *				
	Trofex™	[Progress bar from Discovery to Phase 1]				
TREATMENT	Azedra™	[Progress bar from Discovery to Phase 2] **, ***, ***				
	Onalta™	[Progress bar from Discovery to Phase 2] **				
	Solazed™	[Progress bar from Discovery to Phase 1]				

* Known molecule commercialized outside the U.S.
 ** Orphan Drug status
 *** Fast Track designation

Therapeutic Area: ■ Cardiology ■ Oncology

MOLECULAR IMAGING RADIOPHARMACEUTICAL FRANCHISE: ZEMIVA™ AND TROFEX™

Zemiva

Molecular Insight is building a molecular imaging radiopharmaceutical franchise to better enable the early detection, staging and monitoring of life-threatening diseases. Its lead molecular imaging candidate, Zemiva, is in clinical development for the detection of cardiac ischemia, or insufficient blood flow to the heart. Zemiva is initially being developed to detect cardiac ischemia in the emergency department setting and has the potential to: provide timely and accurate chest/pain evaluation of patients in the emergency department; to reduce critical time to treatment and unnecessary costs; and to save lives. Current delays in the diagnosis of cardiac ischemia in the emergency department setting increase critical time to treatment and result in >\$6 billion in unnecessary admissions.

Zemiva Can Reduce Time to Treatment After Initial Triage



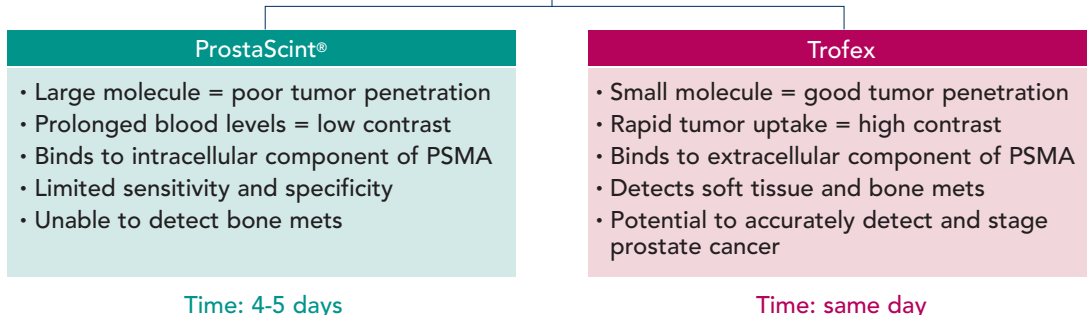
Zemiva is a fatty acid analog that enables visualization of changes in cardiac metabolism to detect heart disease. Zemiva can be used immediately, at rest, on standard nuclear medicine SPECT cameras found in all accredited hospitals.

- May enable widespread use of cardiac imaging in the emergency department setting; allows imaging 10 minutes after injection.
- Can detect cardiac ischemia at rest up to 30 hours after a cardiac event; one-tenth the radiation dose as compared to cardiac CT.
- Completed five U.S. clinical trials.
- In the Phase 2 trial, the combination of Zemiva imaging with initial clinical information resulted in:
 - Improved sensitivity for detecting ischemia (85%) that was statistically significant ($p < 0.0001$), when compared to the sensitivity of the initial clinical diagnosis alone (52.2%)
 - A significant increase in the negative predictive value ($p < 0.0001$) to 89.6% for patients with cardiac ischemia when Zemiva was added, up from 72% with standard diagnostic techniques alone
- Phase 3 trial to begin in 2010.

Trofex

Molecular Insight's imaging franchise also includes Trofex for the detection, staging and monitoring of metastatic prostate cancer. Trofex is a small molecule inhibitor of prostate-specific membrane antigen (PSMA), a protein expressed predominately on prostate cancer cells. Molecular Insight initiated a Phase 1 dosimetry trial for the Trofex program in 2008. The trial was designed to establish proof-of-concept and evaluate two candidate compounds to select a lead compound for further clinical development and commercialization. Both detected metastatic prostate cancer lesions in soft tissues and bone and were uniquely able to detect metastases within one to two hours after injection.

Trofex Can Change the Landscape of Prostate Cancer Imaging in Relapsed and High Risk Patients

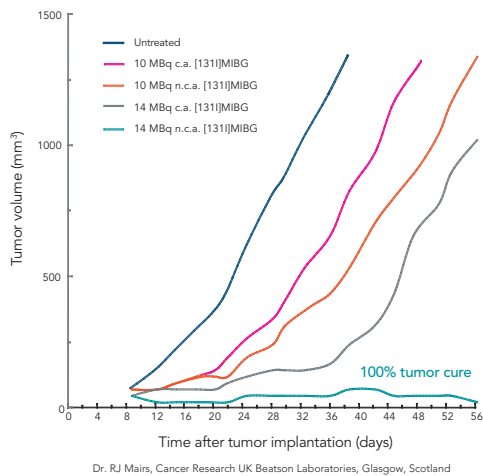


TARGETED MOLECULAR RADIOTHERAPEUTIC FRANCHISE: AZEDRA™, ONALTA™ AND SOLAZED™

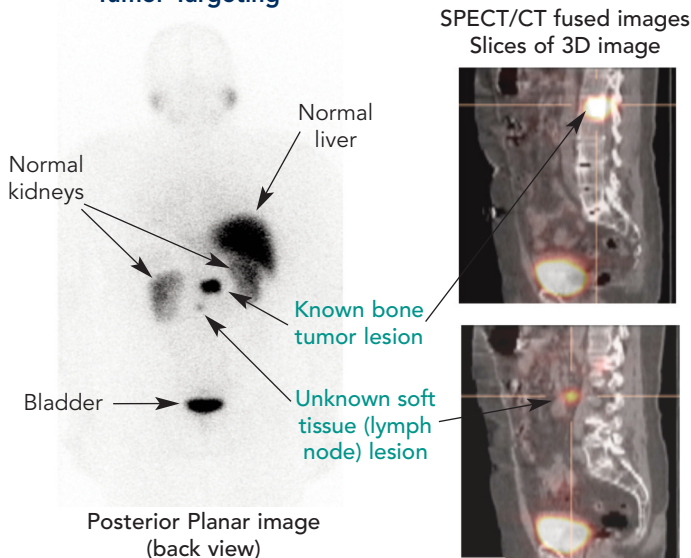
Molecular Insight is developing a pipeline of targeted molecular radiotherapeutics for the treatment of cancer that combine the use of an established cancer treatment, radiation therapy, with advances in molecular medicine to create medicines that selectively bind to specific molecular targets on a tumor. The Company's development pipeline includes candidates for the treatment of neuroendocrine tumors and malignant melanoma.

Azedra's Ultratrace Improves Purity, Enhancing Tumor Shrinkage

At each dose level, Azedra outperforms I 131 MIBG in preclinical studies



Azedra Enables Neuroendocrine Tumor Targeting



Also in Development:

Molecular Insight's targeted molecular radiotherapeutic pipeline also includes Solazed (loflubenzamide I 131) for the treatment of malignant melanoma, the most serious form of skin cancer. Solazed, in-licensed from Bayer Schering Pharma, is a small molecule that targets melanin, a naturally occurring skin pigment that is overexpressed in approximately 40 percent of melanoma tumors.

LEAD CANDIDATES

Molecular Insight is developing its lead targeted radiotherapeutic candidates, Azedra and Onalta, for the treatment of neuroendocrine tumors. These cancers, which arise from cells that play a role in both the endocrine and nervous systems, can occur in a number of tissues that support the peripheral nervous system, including head and neck, adrenal gland, intestinal track and spinal ganglia.

Azedra (Ultratrace™ Iobenguane I 131)

- In development for the treatment of neuroendocrine tumors, such as neuroblastoma and pheochromocytoma.
- Molecular Insight is combining an already commercialized molecule, I 131 MIBG, a radiotherapeutic on the market in Europe, but not in the United States, with the Company's proprietary Ultratrace radiolabeling technology. The Ultratrace technology platform significantly enhances the therapeutic value of Azedra by eliminating unnecessary cold contaminants, or non-radioactive iobenguane, which provide no therapeutic benefit. The absence of cold contaminants allows greater tumor concentration of Azedra and reduced side effects related to the drug's administration.
- Granted Fast Track designation and Orphan Drug status by the U.S. FDA.
- Received SPA for pivotal Phase 2 trial in pheochromocytoma
- Initiated a pivotal Phase 2 trial in pheochromocytoma
- Currently in a Phase 2 dose-ranging and efficacy clinical trial in children with high-risk neuroblastoma.

Onalta (90Y edotreotide)

- In-licensed from Novartis Pharma AG for the treatment of neuroendocrine tumors, such as pancreatic neuroendocrine and carcinoid tumors.
- Targets somatostatin receptors on tumor cells to deliver therapeutic radiation to destroy tumors.
- Granted Orphan Drug status by the U.S. FDA.
- Completed three Phase 1 and three Phase 2 clinical trials in more than 300 U.S. patients.
- Received European Medicines Agency (EMA) approval for Phase 3 Protocol.

COMMERCIALIZATION STRATEGY FOR LEAD PRODUCTS

- Zemiva™
 - Focus on approximately 1,400 hospitals with more than 200 beds that have nuclear medicine capabilities.
 - Accounts for >75% of emergency department visits.
 - Establish strategic collaborations outside of the United States.
- Azedra™ and Onalta™
 - Initially focus on large cancer centers currently practicing targeted radiotherapy.
 - Establish strategic collaborations outside of the United States.



CLINICAL MILESTONES THROUGH 2009

- Zemiva
 - Results from BP-23 Phase 2 trial demonstrated Zemiva's ability to rapidly detect cardiac ischemia
 - Obtain FDA agreement on Phase 3 protocol for Zemiva
- Trofex
 - Complete Fast Track Development pathway
 - Initiate and complete Phase 1 comparison versus Proscint
 - Initiate and complete Phase 1 normals study
 - Initiate and complete Phase 1 biopsy validation study
- Azedra
 - Pivotal Phase 2 trial for the treatment of pheochromocytoma begun
 - Complete Phase 2a maximum tolerated dose (MTD) trial in neuroblastoma
 - Obtain FDA agreement on Phase 2 efficacy protocol for neuroblastoma

Statements in this fact sheet that are not strictly historical in nature constitute "forward-looking statements." Such statements include, but are not limited to, statements about the development of Azedra™, Onalta™, Zemiva™, Trofex™ and our other product candidates. Such forward-looking statements involve known and unknown risks, uncertainties, and other factors that may cause the actual results of Molecular Insight to be materially different from historical results or from any results expressed or implied by such forward-looking statements. These factors include, but are not limited to, risks and uncertainties related to the progress, timing, cost and results of clinical trials and product development programs; difficulties or delays in obtaining regulatory approval for product candidates; competition from other pharmaceutical or biotechnology companies; and the additional risks discussed in filings with the Securities and Exchange Commission (SEC). The Company's SEC filings are available through the SEC's Electronic Data Gathering Analysis and Retrieval system (EDGAR) at www.sec.gov. Press releases for Molecular Insight Pharmaceuticals, Inc. are available on our website: www.molecularinsight.com. If you would like to receive press releases via email, please contact: investor@molecularinsight.com. All forward-looking statements are qualified in their entirety by this cautionary statement, and Molecular Insight undertakes no obligation to revise or update this fact sheet to reflect events or circumstances after the date hereof.

MANAGEMENT TEAM

Daniel L. Peters

President and
Chief Executive Officer

John W. Babich, Ph.D.

Executive Vice President,
Chief Scientific Officer, and
President of Research and
Development

Norman D. LaFrance, M.D.

Senior Vice President and
Chief Medical Officer

Charles H. Abdalian, Jr.

Vice President of Finance and
Chief Financial Officer

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pharmaceuticals 

PIONEERS IN MEDICINE. PARTNERS IN CARE.

Molecular Insight Pharmaceuticals, Inc.
160 Second Street
Cambridge, MA 02142
t: 617.492.5554
f: 617.492.5664
www.molecularinsight.com

Investor Relations and Corporate Communications

Deborah S. Lorenz
617.871.6667
dlorenz@molecularinsight.com