

PIONEERS IN MEDICINE. PARTNERS IN CARE.

AT-A-GLANCE

As of September 11, 2009

NASDAQ: MIPI

Share price: \$5.54

52 week price range: \$8.80 - \$1.15

Shares outstanding: 25 million

Market Cap: \$139 million

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

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

Candidates: Azedra, Onalta, and Solazed

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

Candidates: Zemiva and Trofex

CORPORATE OVERVIEW

Molecular Insight Pharmaceuticals, Inc., is a clinical-stage biopharmaceutical company and a pioneer in the emerging field of molecular medicine. The Company is focused on the discovery and development of therapeutic radiopharmaceuticals and targeted molecular imaging in oncology and cardiology. Molecular Insight has five clinical-stage candidates in development. The Company's oncology candidates include: Azedra™ for treatment of pheochromocytoma and neuroblastoma, Onalta™ for the treatment of metastatic carcinoid and pancreatic neuroendocrine tumors, Solazed™, which targets malignant metastatic melanoma, and Trofex™ for the detection of metastatic prostate cancer. Zemiva™ the Company's cardiology candidate, is being developed for the diagnosis of acute myocardial ischemia.

INVESTMENT HIGHLIGHTS

- Pioneer in molecular medicine – oncology focused
- Five clinical-stage candidates addressing seven indications with large unmet patient needs
- Significant partnering opportunities in oncology and cardiology

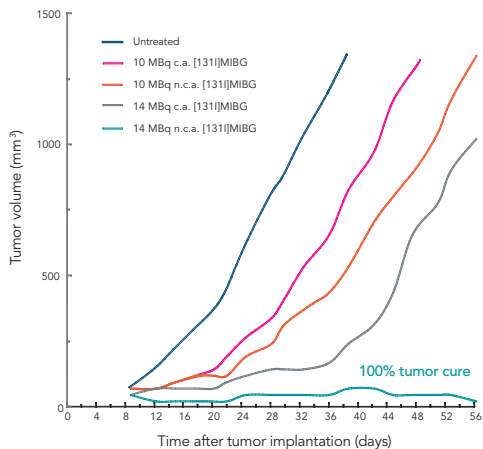
PRODUCT CANDIDATE PIPELINE

| | Product Candidates | Indication | Q3 2009 | | | | Status |
|------------|--------------------|--|------------------|----|---------------|----|---|
| | | | Pre | P1 | P2 | P3 | |
| ONCOLOGY | Azedra™ | Treatment of neuroendocrine tumors using tumor's norepineohrine uptake mechanism | Pheochromocytoma | | Neuroblastoma | | <ul style="list-style-type: none"> • Molecule commercialized outside the U.S. • Pivotal trial – Phase 2 • Orphan drug status • Fast track designation |
| | Onalta™ | Treatment of carcinoid tumors using receptor-based radiotherapeutic | [Progress bar] | | | | <ul style="list-style-type: none"> • Orphan drug status • Sub-licensed in certain non-U.S. territories |
| | Solazed™ | Treatment of metastatic melanoma based on melanin-binding small molecule | [Progress bar] | | | | <ul style="list-style-type: none"> • Orphan drug status • Initiated proof of concept |
| | Trofex™ | Detection and monitoring of prostate cancer via binding to prostate-specific membrane antigen (PSMA) | [Progress bar] | | | | <ul style="list-style-type: none"> • Completed Proof of Concept – Phase 1 |
| CARDIOLOGY | Zemiva™ | Detection and management of cardiac ischemia by imaging metabolic changes in the heart | [Progress bar] | | | | <ul style="list-style-type: none"> • Molecule commercialized outside the U.S. • Phase 3 discussions ongoing with FDA |

ONCOLOGY FRANCHISE: AZEDRA™, ONALTA™, SOLAZED™ AND TROFEX™

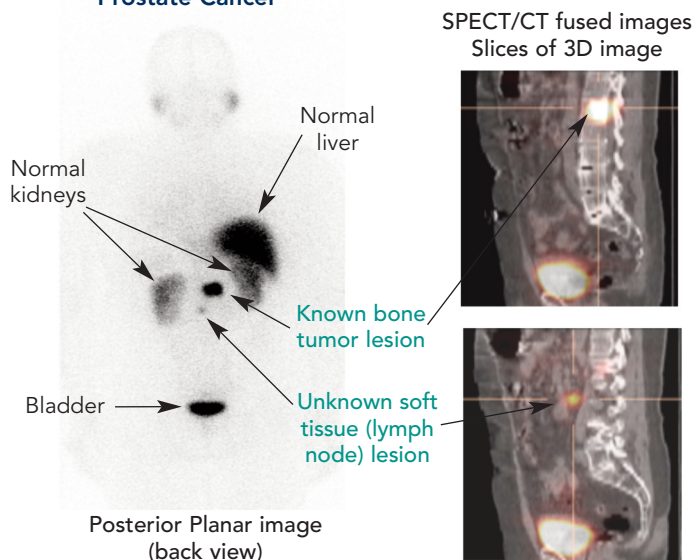
Azedra's Ultratrace Improves Purity, Enhancing Tumor Shrinkage

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



Dr. RJ Mairs, Cancer Research UK Beatson Laboratories, Glasgow, Scotland

Trofex Has Potential to Detect, Stage, Treat Prostate Cancer



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 and prostate cancer.

ONCOLOGY FRANCHISE

Molecular Insight is developing its 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, 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, 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)

- Developed to deliver therapeutic radiation to destroy tumors such as pancreatic neuroendocrine and carcinoid tumors.
- Granted Orphan Drug status by the U.S. FDA.
- Received European Medicines Agency (EMA) approval for Phase 3 Protocol.
- Completed three Phase 1 and three Phase 2 clinical trials in more than 300 U.S. patients.
- Sub-licensed to BioMedica in certain non-U.S. territories; initial payment plus pre-commercial milestones.

Solazed

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

Trofex

Molecular Insight's oncology 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

ProstaScint® (Currently available treatment)

- Large molecule = poor tumor penetration
- Prolonged blood levels = low contrast
- Binds to intracellular component of PSMA
- Limited sensitivity and specificity
- Unable to detect bone mets

Time: 4-5 days

Trofex

- Small molecule = good tumor penetration
- Rapid tumor uptake = high contrast
- Binds to extracellular component of PSMA
- Detects soft tissue and bone mets
- Potential to accurately detect and stage prostate cancer

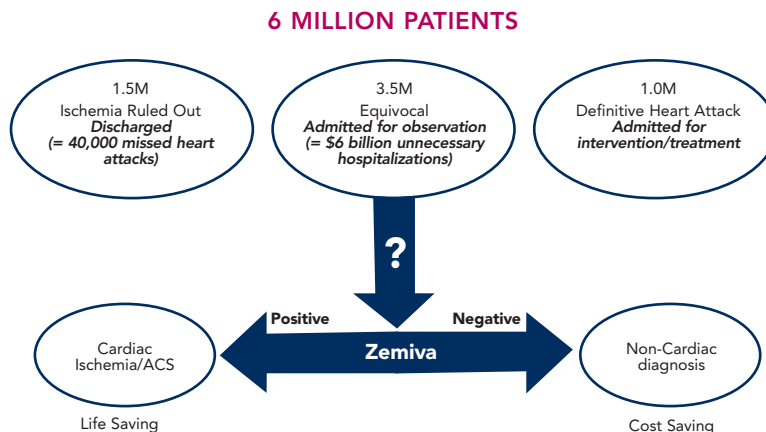
Time: same day

Source: 2007 Health Advances Market Research

CARDIOLOGY FRANCHISE: ZEMIVA™

Zemiva

Molecular Insight is building a molecular imaging radiopharmaceutical franchise to 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.



Advance Data From Vital & Health Statistics Number 386, June 2007, National Hospital Ambulatory Medical Care Survey: 2005 Emergency Department Summary by Eric W. Nawar, M.H.S.; Richard W. Niska, M.D., F.A.C.E.P.; and Jianmin Xu, M.S., Division of Health Care Statistics

KEY 2009 DEVELOPMENT MILESTONES

- **Azedra**
 - ✓ Obtained FDA agreement on Phase 2 Pivotal protocol for pheochromocytoma
 - ✓ Initiate Pivotal Phase 2 trial for the treatment of pheochromocytoma
 - Complete Phase 2a maximum tolerated dose trial in neuroblastoma
 - Obtain FDA agreement on Pivotal Phase 2 efficacy protocol for neuroblastoma

- **Trofex**
 - ✓ Complete proof of concept and dosimetry trial for the detection of prostate cancer
 - Complete Fast Track Development pathway
 - Initiate Phase 1 comparison versus ProstateScint
 - Initiate and complete Phase 1 normal images and tissue kinetics study

- **Zemiva**
 - ✓ Results from Phase 2 trial demonstrated Zemiva's ability to rapidly detect cardiac ischemia
 - Obtain FDA agreement on Phase 3 protocol for Zemiva; pursue SPA



MANAGEMENT TEAM

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Chief Executive Officer

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Chief Scientific Officer, and
President of Research and
Development

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Chief Medical Officer

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molecularinsight
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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.