

# Diagnostic Imaging Agents

The Next Generation

July 2007



Greystone Associates  
98 Route 101A, Suite 17  
Amherst, NH 03031  
603-595-4340 • fax 603-804-0466

A number of challenging opportunities are on the horizon for medical imaging. These opportunities are being driven by the migratory advances of academic, public (government) and commercial research programs.

The ability of next-generation diagnostic imaging agents to improve diagnostic and treatment capabilities is now driving a directed effort to develop improved techniques for disease detection, therapeutic screening, and treatment assessment.

Molecular Imaging has the potential to provide both spatial and temporal dimensions to the understanding of the gene expression of the disease or therapy.

The next generation of imaging agents will greatly reduce the need for animal tissue sampling or human biopsy when studying the progression of a disease or the follow-up of a gene therapy

Greystone Associates is pleased to announce the publication of a new market study. **Diagnostic Imaging Agents: The Next Generation** is a comprehensive evaluation and analysis of the technology, products and participants providing the driving force behind this growing segment of the diagnostics sector.

Published in July (2007), the report has been designed and developed to provide pharmaceutical company decision makers, enabling technology providers, discovery tool designers, and industry strategists with a detailed understanding of the expanding role and potential of biomarker discovery on drug development and diagnostic medicine. Provider organization business managers, healthcare administrators and investors will also benefit from this publication.

### Imaging Processes at the Molecular and Cellular Level

A number of challenging opportunities are on the horizon for medical imaging. Unlike many other sectors of the healthcare industry where technology successes periodical occur that seem to propel the market forward, these opportunities are being driven by the migratory advances of academic, public (government) and commercial research programs.

The potential for the next generation of diagnostic imaging agents is significant. SPECT and PET tracers have been developed to measure oxidative metabolism, fatty acid and amino acid metabolism, and pre- and post-synaptic receptor densities. The ability of these first-generation agents to improve diagnostic and treatment capabilities is now driving a directed effort to develop the next-generation of molecular agents. To sense biological processes such as gene expression, angiogenesis, apoptosis or cell trafficking in vivo, imaging reporter agents that interact specifically with molecular targets and appropriate imaging systems are currently under development.

Molecular imaging will greatly reduce the need for animal tissue sampling or human biopsy when studying the progression of a disease or the follow-up of a gene therapy. It has the advantage of being non-invasive, and because it can be repeated many times, it provides both spatial and temporal dimensions to the understanding of the gene expression of the disease or therapy.

# Table of Contents

## Executive Summary

### Advanced Imaging Agents - Market Dynamics

- Targeted Therapy
- The Potential of Physiological Imaging
- Molecular Imaging – Current Successes
  - <sup>18</sup>F-DG
  - Prostascint
- Market Drivers
- Industry Alignment and Competitive Landscape
- Differential Diagnosis

### Diagnostic Imaging Technology

- Candidates and Strategies
  - Antibodies
  - Conjugated Radioisotopes
  - Lanthanide Chelates
  - Metabolic Biomarkers
  - Optical Probes
  - Nanoparticles
- Targeted Imaging Agents
- Activatable Imaging Agents
- Leading Academic/Research Programs/Centers
  - Johns Hopkins
  - Mass General Hospital
  - Stanford University

### Imaging Modalities & the Potential of Molecular Imaging

- MRI
- Optical Imaging
- PET
- SPECT
- Ultrasound

### The Need for New Imaging Agents

- Disease Detection
- Image-Guided Drug Delivery
- Physiological Process Mapping
- Therapeutic Screening
- Treatment Assessment

### Clinical Applications –Near-Term Assessment and Future Impact

- Physiological Visualization
  - Angiogenesis
  - Apoptosis
  - Inflammation
- Disease Detection and Therapeutic Management
  - Autoimmunity
  - Cardiology
  - Neurology
  - Oncology

### Market Factors

- Guidance, Rules and Regulations
- Clinical Validation
- Alliances & Partnerships
- Complementary Imaging Modalities and Hybrid Systems

### Company Profiles

---

## ***Market Data***

The study presents qualitative and quantitative data and information on key market measures and benchmarks:

- Imaging Segment Assessment
- Global Market Analysis
- Technology Assessments
- Commercialization Strategies
- Imaging Agent Development Criteria
- Commercial Limitations
- Company Profiles
- Alliances and Strategies
- Regulatory Factors
- Technology Risk Factors

## Methodology

Research methodology is based on primary research in the form of in-depth interviews with key market participants, technology developers, distributors, industry experts, and market influencers, a list that includes regulatory officials, industry trade groups, and materials standards organizations.

Primary data is evaluated and normalized against secondary sources including trade journal articles, technical literature, industry publications, company data sheets and published information, and statistical data from government agencies and trade associations.

Forecasts and projections of market demand and future market activity are derived using standard modeling and statistical techniques

## Feature Summary

---

- Analyzes and assesses emerging imaging diagnostic candidates, their capabilities, benefits, limitations and potential
- Profiles development-stage imaging agents and examines their clinical status and commercial prospects
- Analyzes key industry alliances and partnerships by imaging modality, and examines the impact of next-generation imaging candidates on future imaging markets
- Profiles market participants, their development activity and business strategies
- Evaluates the impact of economic, technology, and regulatory factors on the development and commercialization of emerging imaging agents

## Report Format and Availability

---

This report is available in hard copy or electronic format. A site license for a single physical location and a global license are also available.

## About Greystone Associates

---

Greystone Associates is a medical technology consulting firm focused on the areas of medical market strategy, product commercialization, venture development, and market research. We assist medical and healthcare market participants in achieving their business objectives through the creation of detailed development strategies, product commercialization programs, and comprehensive market and technology research and analysis.

Our market research publications are designed, researched and written to provide timely and insightful information and data on focused market segments, with the aim of providing market participants with the essential knowledge to refine and execute their marketing plans and financial targets.

# Ordering Information

Orders may be placed via postal mail, e-mail or fax. Orders not accompanied by a purchase order must contain a telephone number for verification, and clearly indicate the physical shipping address. Orders which are not prepaid must indicate the billing address. There is no charge for handling and shipping for destination addresses within the continental US.

## Payment

We accept the following forms of payment:

**Company Check:** Please make checks payable to 'Greystone Associates'

**Credit Cards:** We accept MasterCard, Visa and American Express

**Wire Transfers:** See 'Wire Transfers' below for more information

### Orders Outside the U.S.

Orders must be prepaid via credit card, company check in US funds and drawn on a US bank, or wire transfer. There is a \$50 per copy shipping and handling charge for international shipments.

Wire Transfers: Bank of New Hampshire  
300 Franklin Street  
Manchester, NH 03103  
(Call for Account Information)

Mailing Address: P.O. Box 1362  
Amherst, NH 03031

## Diagnostic Imaging Agents: The Next Generation

Format	Price (U.S. funds)	Quantity	Total
Hard Copy	\$3,450.00		
Add'l Copies	\$375.00		
Electronic	\$3,850.00		
Site License	\$4,850.00		
Global License	\$6,500.00		
<b>Total Payment (U.S. funds)</b>			

Method of Payment:  Company Check        Wire Transfer (International)

Card Number: \_\_\_\_\_ Name on Card \_\_\_\_\_  
Expiration Date: \_\_\_\_\_ Signature \_\_\_\_\_

Billing Information	Shipping Information
	<input type="checkbox"/> Click here if same as Billing Information
Name:	Name:
Title:	Title:
Company:	Company:
Street Address:	Street Address:
City,State/Province:	City,State/Province:
Country/Postal Code:	Country/Postal Code:
Phone:	Phone:
Fax:	Fax:
Email:	Email: