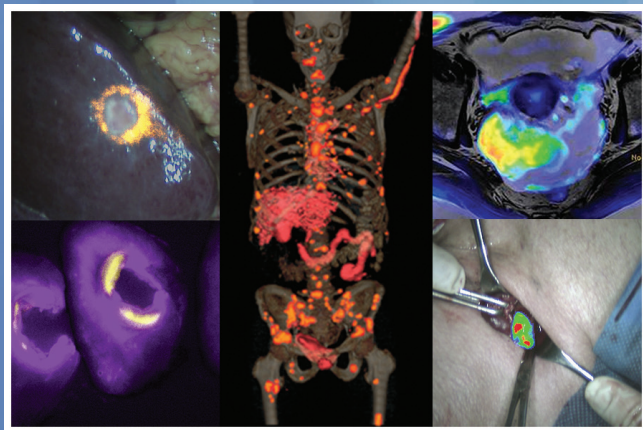


# ADVANCED MOLECULAR IMAGING AND ITS CLINICAL TRANSLATION



**OCTOBER 27-30, 2013**

Fairmont Copley Plaza  
Boston, Massachusetts  
USA

## **COURSE DIRECTORS**

John V. Frangioni, M.D., Ph.D.

Ralph Weissleder, M.D., Ph.D.

## **PROGRAM COMMITTEE**

Jason S. Lewis, Ph.D.

Anna M. Wu, Ph.D.

## **ORGANIZING COMMITTEE**

James P. Babilion, Ph.D.

Zaver M. Bhujwala, Ph.D.



Sentinel Node Oncology  
Foundation / Sentinel Lymph  
Node Working Group

[www.advancedmolecularemaging.org](http://www.advancedmolecularemaging.org)

## COURSE DESCRIPTION

Molecular imaging holds the promise for improved patient management in medicine and surgery. To realize this goal, a thorough understanding of the instrumentation and diagnostic agents that comprise the field is necessary, as is an understanding of why the field has yet to live up to its potential. **Advanced Molecular Imaging and its Clinical Translation** will provide a comprehensive educational experience in the physics, chemistry, engineering, and physiology that are the foundation of molecular imaging. It will also include key leaders from industry, who will bring their perspective on how intellectual property, regulatory approval, and reimbursement impact patient care. Faculty from around the world specializing in basic science, clinical translation, and clinical applications have been carefully chosen to bring course attendees to the state-of-the-art in the field.

The course is designed to encourage interactive audience participation with frequent question and answer sessions, and breaks, with the faculty and other attendees.

The course will cover most aspects of molecular imaging including optical imaging, SPECT, PET, CT, MRI, ultrasound, combinations thereof, contrast agent chemistry, radiotracer development, preclinical imaging, regulatory, statistical, reimbursement, and logistical issues surrounding clinical translation, and state-of-the-art clinical imaging in cancer, heart disease, neurology, and other human conditions.

Distinguished guest faculty from around the world, including members of the faculty of the Harvard Medical School, will update physicians, scientists, and trainees on the latest techniques in molecular imaging as well as those under development and slated for clinical implementation in the future. Faculty will also offer a glimpse into emerging methodologies in molecular imaging that could become part of clinical practice within the next decade.

Please note that because of the purposeful interaction of academia and industry, this is NOT a continuing medical education (CME) course. **NO CME CREDIT IS AVAILABLE.**

## COURSE HISTORY

This is the second annual iteration of the course. The first, titled **Molecular Imaging: Preclinical and Clinical Advances**, drew participants from around the world, suggesting that partnering with the World Molecular Imaging Society (WMIS) would be beneficial. We have also partnered with the FLARE Foundation ([www.theflarefoundation.org](http://www.theflarefoundation.org)), a nonprofit organization focused on worldwide medical technology dissemination. Based on feedback from the initial course, lectures have been shortened to permit more time for questions and answers, and industry has been engaged to address the present conundrum that most new technology in molecular imaging never becomes available for patient care.

## TARGET AUDIENCE

Clinicians, researchers, and trainees interested in an intense learning experience. This course will introduce the fundamental physics, chemistry, and engineering that serves as the foundation for molecular imaging, as well as present the state-of-the-art in preclinical imaging, clinical translation, and clinical utilization in the following areas:

- Optical imaging and image-guided surgery using endogenous and exogenous contrast
- Advanced ultrasound methods
- Cell- and organism-level barriers to a high SBR
- SPECT/CT, SPECT/MRI, PET/CT, and PET/MRI and their radiopharmacies
- Hyperpolarization, CEST, PARACEST, and high-field MRI
- Multidetector and spectral CT
- Clinical translation of medical devices and diagnostic agents
- Intellectual property, statistics, regulatory approval, and reimbursement in imaging

## DISCLOSURE POLICY

Faculty members have been instructed to disclose any relevant financial relationships with commercial entities, as well as to identify any limitations of data and unlabeled or investigational uses of products during their presentations.

## REGISTRATION AND COURSE INFORMATION

| <b>Course Tuition</b>                      | Prior to August 1, 2013 |       | After August 1, 2013 |       |
|--|-------------------------|-------|----------------------|-------|
|  | Regular                 | WMIS  | Regular              | WMIS  |
| Physicians & Scientists                    | \$895                   | \$845 | \$995                | \$895 |
| Residents, Fellows, & Students in Training | \$795                   | \$745 | \$895                | \$845 |

Reduced tuition is offered to WMIS members and non-members who register prior to August 1, 2013. Registration is online only at [www.advancedmolecularimaging.org](http://www.advancedmolecularimaging.org). Due to the interactive nature of the course, only the first 400 registrants will be accepted. A cancellation fee of \$100 will be charged for refund requests received up to 1 week prior to the course. No cancellations will be accepted thereafter.

For information on the course, please contact:

**Joan Oefner**

Rhema Association Management  
[joefner@societymanagement.com](mailto:joefner@societymanagement.com)

## COURSE VENUE

The course will be held at the beautiful Fairmont Copley Plaza in Boston's historic Back Bay area. The hotel is located at 138 St. James Avenue, Boston, MA 02116, USA (Tel 617-267-5300) or online at [www.fairmont.com/copley-plaza-boston/](http://www.fairmont.com/copley-plaza-boston/)

A limited number of hotel rooms at discounted group rates are available to course participants on a first come, first served basis.

\* Standard Room \$299 plus tax, currently 14.45%.

\* Deluxe Room - \$339 plus tax, currently 14.45%.

Rooms can be booked online at

<https://resweb.passkey.com/go/molecularimaging2013>

Hotel guests of the course enrolling in the free President's Club will receive complimentary in-room internet access.

## *Distinguished Faculty*

### **Samuel Achilefu, Ph.D.**

Professor of Radiology  
Washington University  
St. Louis, MO

### **Jonathan Allis, Ph.D.**

GE Healthcare  
The Grove Centre  
Amersham, United Kingdom

### **David A. Boas, Ph.D.**

Professor of Radiology  
Massachusetts General Hospital  
Boston, MA

### **Brett E. Bouma Ph.D.**

Professor of Dermatology  
Massachusetts General Hospital  
Boston, MA

### **Peter D. Caravan, Ph.D.**

Assistant Professor of Radiology  
Massachusetts General Hospital  
Boston, MA

### **Christopher Contag, Ph.D.**

Professor of Pediatrics,  
Microbiology & Immunology  
Stanford University  
Stanford, CA

### **Marcelo F. Di Carli, M.D., FACC**

Associate Professor of Radiology  
Brigham and Women's Hospital  
Boston, MA

### **Georges El Fakhri, Ph.D.**

Professor of Radiology  
Massachusetts General Hospital  
Boston, MA

### **John V. Frangioni, M.D., Ph.D.**

Professor of Medicine  
Professor of Radiology  
Beth Israel Deaconess Medical  
Center, Boston, MA

### **Jason L. Gaglia, M.D.**

Instructor in Medicine  
Joslin Diabetes Center  
Boston, MA

### **Rajiv Gupta, M.D., Ph.D.**

Assistant Professor of Radiology  
Massachusetts General Hospital  
Boston, MA

### **Mukesh G. Harisinghani, M.D.**

Associate Professor of Radiology  
Massachusetts General Hospital  
Boston, MA

### **Ron Heeren, Ph.D.**

Professor of Chemistry  
FOM Institute AMOLF  
Amsterdam, The Netherlands

### **Jacob M. Hooker, Ph.D.**

Assistant Professor of Radiology  
Massachusetts General Hospital  
Boston, MA

### **Jack Hoppin Ph.D.**

CEO, inviCRO, Inc.  
Boston, MA

### **Paula Jacobs, Ph.D.**

Associate Director, NCI Cancer  
Imaging Program  
Washington, DC

### **Amin I. Kassis, Ph.D.**

Professor of Radiology  
Harvard Medical School  
Boston, MA

### **Norbert Lange, Ph.D.**

Professor of Pharmaceutical  
Sciences  
University of Geneva  
Geneva, Switzerland

### **Robert Lenkinski, Ph.D.**

Professor of Radiology  
UT Southwestern Medical Center  
Dallas, TX

### **Jason S. Lewis, Ph.D.**

Vice Chair of Research  
Memorial Sloan-Kettering Cancer  
Center, New York, NY

## *Distinguished Faculty cont.*

### **Warren J. Manning, M.D.**

Professor of Medicine  
Professor of Radiology  
Beth Israel Deaconess Medical  
Center,  
Boston, MA

### **Louis Marzella, M.D., Ph.D.**

Deputy Director, Division of  
Medical Imaging Products  
US Food and Drug Administration  
Washington, DC

### **Susan McQuattie, MRT(N)**

Charge Technologist, Nuclear  
Medicine  
The Hospital for Sick Children  
Toronto, Toronto, Canada

### **Kathryn R. Nightingale, Ph.D.**

James L. Vincent Associate Professor  
Duke University  
Durham, NC

### **Adrian D. Nunn, Ph.D.**

Director of Research  
Bracco Research USA  
Princeton, NJ

### **Bernd J. Pichler, Ph.D.**

Professor of Preclinical Imaging  
and Radiopharmacy  
University Tübingen  
Tübingen, Germany

### **Bruce R. Rosen, M.D., Ph.D.**

Professor of Radiology  
Massachusetts General Hospital  
Boston, MA

### **Frank J. Rybicki, M.D., Ph.D.**

Associate Professor of Radiology  
Brigham and Women's Hospital  
Boston, MA

### **Evis Sala, M.D., Ph.D.**

Director of Gynecologic Radiology  
Memorial Sloan-Kettering  
Cancer Center, New York, NY

### **Markus Schwaiger, M.D.**

Professor and Director of Nuclear  
Medicine  
Technical University of Munich,  
Munich, Germany

### **Sally W. Schwarz, M.S., B.C.N.P**

Research Associate Professor  
Washington University  
St. Louis, MO

### **Gregory Sorensen, M.D.**

Chief Executive Officer  
Siemens Healthcare  
Malvern, PA

### **Jonathan Sorger, Ph.D., M.B.A.**

Director of Medical Research  
Intuitive Surgical, Sunnyvale, CA

### **Julie L. Sutcliffe, Ph.D.**

Associate Professor of Biomedical  
Engineering  
University of California  
Davis, CA

### **Bruce J. Tromberg, Ph.D.**

Professor of Biomedical  
Engineering  
University of California  
Irvine, CA

### **Alex Vahrmeijer, M.D., Ph.D.**

Attending Surgeon  
Leiden University Medical Center  
Leiden, The Netherlands

### **Lihong Wang, Ph.D.**

Gene K. Beare Distinguished  
Professor  
Washington University  
St. Louis, MO

### **Ralph Weissleder, M.D., Ph.D.**

Professor of Radiology  
and Systems Biology  
Massachusetts General Hospital  
Boston, MA

### **Anna M. Wu, Ph.D.**

Professor of Molecular & Medical  
Pharmacology  
UCLA - Crump Institute  
Los Angeles, CA

| Sunday October 27, 2013 |  |                    |  | Tuesday October 29, 2013   |  |                     |  |
|-------------------------|--|--------------------|--|----------------------------|--|---------------------|--|
| 7:00-7:45 am            | Breakfast ( <i>Grand Ballroom Rostrum</i> )                                    |                    |  | 7:00-7:45 am               | Breakfast ( <i>Grand Ballroom Rostrum</i> )  |                     |  |
| 7:45-8:00 am            | Welcome and introduction ( <i>Grand Ballroom</i> )                             | <b>Frangioni</b>   |  | 7:45-8:25 am               | PET radiochemistry/pharmacy: neurology, cardiology, & other diseases ( <i>Grand ballroom</i> ) | <b>Hooker</b>       |  |
| 8:00-8:40 am            | Multimodality molecular imaging and systems biology                            | <b>Weissleder</b>  |  | 8:25-9:05 am               | Hyperpolarization, CEST, PARACEST, and MRS   | <b>Lenkinski</b>    |  |
| 8:40-9:20 am            | Medical imaging using spatially and temporally modulated light                 | <b>Tromberg</b>    |  | 9:05-9:45 am               | Optical coherence tomography in disease detection  | <b>Bouma</b>        |  |
| 9:20-10:00 am           | Neurological PET/MRI: preclinical & clinical                                   | <b>Pichler</b>     |  | 9:45-10:25 am              | State-of-the-art: emerging technologies for molecular imaging                                  | <b>Contag</b>       |  |
| 10:00-10:20 am          | Break ( <i>Grand Ballroom Rostrum</i> )  |                    |  | 9:45-10:25 am              | Break ( <i>Grand Ballroom Rostrum</i> )  |                     |  |
| 10:20-11:00 am          | Principles and evolution of SPECT/CT and SPECT/MRI ( <i>Grand ballroom</i> )   | <b>El Fakhri</b>   |  | 10:45-11:25 am             | Radioisotope matchmaking for disease Dx & Tx ( <i>Grand ballroom</i> )                         | <b>Kassis</b>       |  |
| 11:00-11:40 am          | High-field MRI and MR spectroscopy   | <b>Rosen</b>       |  | 11:25-12:05 pm             | State-of-the-art: MRI imaging of cancer  | <b>Harisinghani</b> |  |
| 11:40-12 noon           | Panel discussion with morning speakers   |                    |  | 12:05-12:25 pm             | Panel discussion with morning speakers   |                     |  |
| 12:00-1:05 pm           | Lunch Recess   |                    |  | 12:25-1:40 pm              | Lunch Recess   |                     |  |
| 1:05-1:45 pm            | Whole body PET/CT & PET/MR ( <i>Grand ballroom</i> )                           | <b>El Fakhri</b>   |  | 1:40- 2:20 pm              | State-of-the-art: PET/CT imaging of cancer ( <i>Grand ballroom</i> )                           | <b>Lewis</b>        |  |
| 1:45-2:25 pm            | Elastography, harmonic, 3-D, 4-D, and targeted ultrasound                      | <b>Nightingale</b> |  | 2:20- 3:00 pm              | State-of-the-art: MRI and PET imaging in diabetes  | <b>Gaglia</b>       |  |
| 2:25-2:45 pm            | Bench to bedside translation of porphyrins                                     | <b>Lange</b>       |  | 3:00-3:40 pm               | Image-guided surgery using NIR fluorescent light   | <b>Vahrmeijer</b>   |  |
| 2:45-3:25 pm            | Break ( <i>Grand Ballroom Rostrum</i> )  |                    |  | 3:40- 4:00 pm              | Break ( <i>Grand Ballroom Rostrum</i> )  |                     |  |
| 3:25-4:05 pm            | State-of-the-art: SPECT/CT &PET/CT for heart disease ( <i>Grand ballroom</i> ) | <b>Di Carli</b>    |  | 4:00- 4:40 pm              | Clinical translation: new diagnostic agents ( <i>Grand ballroom</i> )                          | <b>Wu</b>           |  |
| 4:05-4:45 pm            | MALDI imaging for diagnostic target discovery & ligand optimization            | <b>Heeren</b>      |  | 4:40- 5:20 pm              | The FDA's perspective on imaging devices and drugs   | <b>Marzella</b>     |  |
| 4:45-5:25 pm            | Clinical translation: new diagnostic medical devices                           | <b>Sorger</b>      |  | 5:20-5:40 pm               | Panel discussion with afternoon speakers   |                     |  |
| 5:25-5:45 pm            | Panel discussion with afternoon speakers                                       |                    |  |                            |  |                     |  |
| Monday October 28, 2013 |  |                    |  | Wednesday October 30, 2013 |  |                     |  |
| 7:00-7:45 am            | Breakfast ( <i>Grand Ballroom Rostrum</i> )                                    |                    |  | 7:00-7:45 am               | Breakfast ( <i>Grand Ballroom Rostrum</i> )  |                     |  |
| 7:45-8:25 am            | PET radiochemistry/pharmacy: Oncology ( <i>Grand ballroom</i> )                | <b>Sutcliffe</b>   |  | 7:45-8:25 am               | Dual-beam and spectral CT for disease detection ( <i>Grand ballroom</i> )                      | <b>Gupta</b>        |  |
| 8:25-9:05 am            | Barriers to molecular imaging & SBR optimization                               | <b>Frangioni</b>   |  | 8:25-9:05 am               | State-of-the-art: Pediatric PET/CT   | <b>McQuattie</b>    |  |
| 9:05-9:45 am            | SPECT radiopharmacy & radiotracer development                                  | <b>Schwarz</b>     |  | 9:05-9:45 am               | Photoacoustic and acoustooptical imaging   | <b>Wang</b>         |  |
| 9:45-10:05 am           | Break ( <i>Grand Ballroom Rostrum</i> )  |                    |  | 9:45-10:05 am              | Break ( <i>Grand Ballroom Rostrum</i> )  |                     |  |
| 10:05-10:45 am          | Interrogation of the brain using NIR light ( <i>Grand ballroom</i> )           | <b>Boas</b>        |  | 10:05-10:45 am             | State-of-the-art: MRI imaging of heart disease ( <i>Grand ballroom</i> )                       | <b>Manning</b>      |  |
| 10:45-11:25 am          | Advances in MR imaging agents  | <b>Caravan</b>     |  | 10:45-11:25 am             | Clinical Translation: Global approval, pricing, & reimbursement                                | <b>Nunn</b>         |  |
| 11:25-11:45 am          | Panel discussion with morning speakers   |                    |  | 11:25-11:45 am             | Panel discussion with morning speakers   |                     |  |
| 11:45-1:00 pm           | Lunch Recess   |                    |  | 11:45-1:00 pm              | Lunch Recess   |                     |  |
| 1:00-1:40 pm            | Radiogenomics for cancer ( <i>Grand Ballroom</i> )                             | <b>Sala</b>        |  | 1:00-1:40 pm               | Clinical translation: IP and industry considerations ( <i>Grand ballroom</i> )                 | <b>Sorensen</b>     |  |
| 1:40-2:20 pm            | Clinical translation: statistical and logistical                               | <b>Hoppin</b>      |  | 1:40-2:20 pm               | State-of-the-art: First-in-human translation of PET/MRI agents                                 | <b>Schwaiger</b>    |  |
| 2:20-3:00 pm            | Optical contrast agents ( <i>Grand ballroom</i> )                              | <b>Achilefu</b>    |  | 2:20-3:00 pm               | Clinical Translation: Industry's perspective on the future of molecular imaging                | <b>Allis</b>        |  |
| 3:00-3:20 pm            | Break ( <i>Grand Ballroom Rostrum</i> )  |                    |  | 3:00-3:20 pm               | Panel discussion with afternoon speakers   |                     |  |
| 3:20-4:00 pm            | Multi-detector CT and perfusion CT for heart disease ( <i>Grand ballroom</i> ) | <b>Rybicki</b>     |  | 3:20-3:40 pm               | Concluding Remarks   | <b>Frangioni</b>    |  |
| 4:00-4:40 pm            | The National Cancer Institute's NEXT Program                                   | <b>Jacobs</b>      |  |                            |  |                     |  |
| 4:40-5:00 pm            | Panel discussion with afternoon speakers                                       |                    |  |                            |  |                     |  |
| 5:00-6:00 pm            | Course reception for all participants ( <i>St. James Room</i> )                |                    |  |                            |  |                     |  |

|                     |                      |                |            |
|---------------------|----------------------|----------------|------------|
| <b>Color Coding</b> | Clinical Translation | New Technology | PET        |
|                     | CT                   | Optical        | SPECT      |
|                     | MRI                  | Overview       | Ultrasound |
|                     |                      |                |            |

Program Changes & Substitution may be made without notice.