

# AMI Co-Sponsors Symposium Bringing Basic Scientists and Clinicians Together

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Basic research is advancing at a rapid rate, but are clinicians keeping pace? Are advances in basic research just scholarly enterprises or do they have applications in clinical settings?

In an attempt to bring these two groups together, the AMI was a co-sponsor of a two-day event last November entitled *In Vivo Molecular Imaging: Bridging the Gap from Pre-Clinical to Clinical Applications*. This symposium, organized by the Cambridge Health Institute (CHI), provided a forum for basic scientists to present their latest innovations and for clinicians to discuss the current, successful modalities in *in vivo* imaging as noted in oncology, in cardiovascular and in neurological systems.

The meeting was divided into three sections. The first section, *Technology Innovations, Pre-Clinical Imaging and Clinical Applications*, explored such topics as drug discovery, drug development, and spectral imaging. Robert Hoffman (AntiCancer Inc.) reported on the use of dual-color, fluorescent imaging of human cancers in mouse models to show the tumor-host interaction, a unique mechanism that provides clues to understand the mechanism of angiogenesis in tumors, while Richard Levenson (CRI Inc.) explained the benefits of spectral imaging in allowing one to resolve differences in fluorescence.

Timothy Pelura (Kereos, Inc.) discussed drugs that are ligand, or targeted to overcome challenges in molecular imaging, allowing early detection of cancers and targeted chemotherapy. Other authors described subjects such as the various nanoparticles available for contrast imaging, the impact of PET on drug discovery and development, and the need for the creation of a PET-ready chemical library to generate compounds that can be screened and used as potential PET target agents.

The second session, *Pre-Clinical Imaging*, explored topics such as bioluminescent probes used in small animal research (Harvey Herschman, UCLA), the detection of tumors and metastases with light emitting bacteria and viruses in animal imaging (Aladar Szalay, Genelux Corporation), and search for new targets to detect diseases (Jan Schnitzer, Sidney Kimmel Cancer Center). Other presenters discussed the imaging of infectious diseases and oncology, the use of biofilm implants in mice to detect tumor cells before they are otherwise visible, and the use of optical imaging and molecular probes to directly monitor drug target function. Can a zebrafish be an ideal model to study human diseases? Nicholas Trede (Harvard Medical School) proposed the model of zebrafish in the *in vivo* imaging of cancers, immune defects and neurodegenerative disorders. The strengths of this model are numerous and additionally the mutants mimic human diseases of the heart, neurological disorders and cancers.

The third session, *Clinical Applications*, included presentations by AMI member Annick Van den Abbeele and ICP Council Chair Johannes Czernin. Dr. Van den Abbeele (Harvard Medical School) discussed the multitude of roles that functional imaging with PET and PET/CT can play in the treatment of cancer patients, such as the characterization of tumors, the staging of the diseases, and the evaluation of therapeutic efficacy. She added that there is reason for optimism when many imaging markers used in preclinical and basic research can be applied clinically. Dr. Johannes Czernin (UCLA) described the prospects of molecular imaging in humans using PET and PET/CT. He noted that the discovery of different probes has had a tremendous impact in imaging, citing the use of radiolabeled COX-2 inhibitors to image inflammation and cancers, [F-18]FLT for tumor cell proliferation, [F-18]-fluoride for bone metastases and [F-18]-DOPA for imaging thyroid disorders and glioblastoma.

At the conclusion of the event, symposium attendees agreed that collaboration between basic scientists and clinicians is essential in advancing molecular imaging technologies and, to this end, the cardinal message to the pharmaceutical experts should be to produce effective and inexpensive drugs that can be achieved through the use of microCT and microPET and to include imaging early on in clinical trials ■