Shaping the Future: The 2006 SNM Molecular Imaging Summit

Medicine will change more in the next twenty years than it has in the past two thousand.

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The SNM has articulated a goal, "to harness the power of molecular imaging and molecular therapeutics in search of better and more effective means to manage diseases and improve the quality of life for patients." As a significant step forward in determining ways to address this goal, SNM joined with industry partners to host a collaborative summit on "Molecular Imaging: Shaping the Future," July 27–30 in Key Biscayne, FL. The purpose of the summit was to bring together nuclear medicine academic and practice innovators with industry leaders to discuss, explore, and expand on topics raised in last year's Joint SNM/Radiological Society of North America Molecular Imaging Summit (*J Nucl Med.* 2005;46[9]:11N–14N,42N). Many of the themes addressed in the 2005 summit workshops were elaborated on in the sessions and breakout discussions at this year's summit.

Perhaps the greatest difference noted by participants between this year's gathering and the last was the sense of urgency and excitement that pervaded the presentations, discussions, and even dinner conversations. The speed of change in molecular imaging is accelerating at a rate that makes the quote at the beginning of this piece both appropriate and admonitory. Industry, practitioners, basic scientists, and funding and regulatory representatives agree that molecular medicine—and molecular imaging in particular—are poised on the brink of a period of extraordinary growth and development. The need for ways to identify the most promising laboratory-based discoveries and encourage their rapid translation to direct and routine patient benefit was identified by summit participants as a central challenge for the entire molecular imaging community.

This theme was introduced on July 28 by keynote speaker Steven Gutman, MD, director of the Office of In Vitro Diagnostic Device Evaluation and Safety in the U.S. Food and Drug Administration (FDA) Center for Devices and Radiological Health, who spoke on "In Vivo Biomarkers in Diagnosis: FDA Regulations and Industry/Academia Partnership." The need for such partnerships across agency and organizational boundaries was echoed in each of the formal sessions and discussions that followed over the course of the summit.

The summit was divided into 5 sections that focused on drug discovery, clinical issues, basic research issues, instrumentation and animal models, and standardization and education. After the presentations from experts in their respective fields, breakout groups were formed for discussion and exchange of ideas. The session chairs and cochairs have prepared overviews that provide both introductions to the presentations in their sections and detailed summaries of consensus areas and group recommendations resulting from intensive breakout sessions and informal discussions over the 3 days summit meetings. These follow in the pages of Newsline, along with the full text of presentations. The conclusions and recommendations resulting from the breakout sessions were noteworthy both for their specificity and cross-disciplinary agreement. Each group also provided a summary statement, and these are included in the following proceedings. A number of consistent conclusions emerged from these summary statements, including the need for:

(1) **Standardization:** The need for shared standards in all aspects of research and practice in molecular imaging was emphasized by every discussion group and identified as central to progress in creating the sound scientific base that will support novel discoveries, fast bench-to-bedside translation, and the generation of solid data for cross-boundary cooperative studies and regulatory approval.

(2) **Education:** An emerging scientific field demands new professionals and innovative approaches to attracting the best and brightest. Every summit session discussion also specifically cited the need to attract and train physicians and scientists for what promises to be a multidisciplinary endeavor that will draw on fields as diverse as biochemistry, organic chemistry, genetics, bioengineering, optics, medical imaging, medical physics, radiation oncology, and many others. The central challenge here is that scientists with this multidisciplinary focus are already urgently needed, so that establishing new molecular imaging curricula in medical schools, graduate medical training, scientific PhD programs, and in continuing medical and scientific education, takes on central importance.

(3) **Cooperative change management:** The field of molecular imaging constitutes an exciting—but

ever-moving—target. Summit participants agreed that the most difficult challenge for planning in any aspect of the field is to devise strategies today that are likely to remain relevant and effective tomorrow. The only way that rapid advances in science and technology can be managed effectively for the optimal benefit of health and disease is through open discussion, cooperative work, and iterative strategic efforts carried out jointly by representatives of all sectors of the molecular imaging community.

We would like to thank all the speakers from academia, industry, and federal agencies for the expertise they provided. Our thanks are also owed to the session chairs and cochairs: Chaitanya Divgi, MD; Alexander McEwan, MD; Steven M. Larson, MD; Martin P. Sandler, MD; Michael Welch, PhD, Mathew L. Thakur, PhD; Cheryl Marks, PhD; Peter Conti, MD, PhD; Lalitha Shankar, MD, PhD; and Virginia Pappas, CAE. Thanks also go to Martin Pomper, MD, PhD, head of the SNM Molecular Imaging Center of Excellence, through which we will work during the coming year to identify strategies to implement the excellent recommendations made through the collaborative efforts of the summit participants. In addition, we thank Conrad Nagle, MD, editor of Newsline, for expanding the format so that the summit proceedings could be included for the benefit of the entire molecular imaging community, and the SNM staff for their work in arranging the summit, preparing meeting materials, and overseeing follow-up activities.

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