

# SNMMI Annual Meeting Highlights Theranostics, Novel Research, and Image of the Year

**M**ore than 5,000 physicians, technologists, scientists, and exhibitors gathered at the SNMMI 2017 Annual Meeting, June 10–14, in Denver, CO. The meeting featured more than 700 scientific podium sessions, as well as special sessions on new tracers and applications, emerging technologies,  $^{18}\text{F}$ -fluciclovine PET real-time reader training, and updates on appropriate use criteria, coding and reimbursement, and  $^{99}\text{Mo}$  production and availability. Three Meet-the-Author poster sessions were offered, and the Exhibit Hall showcased cutting-edge molecular imaging and therapy devices, products, and services. The CT and MRI Case Reviews, presented in collaboration with the University of Colorado Denver, included 52 CT studies and 48 MR imaging case studies.

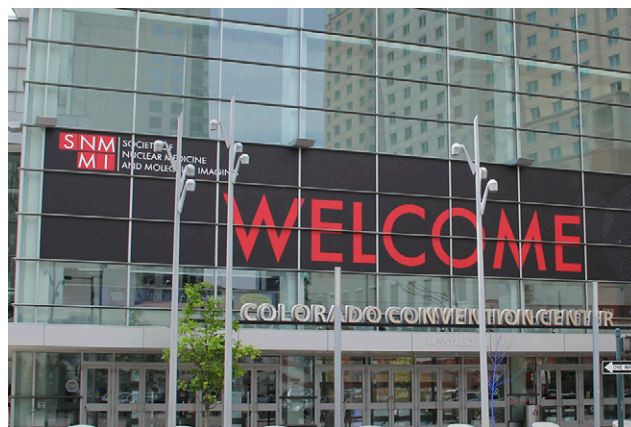
At the opening plenary session on June 11, the focus was on theranostics. The Henry N. Wagner, Jr., MD, Lecture, titled “Theranostics: Looking back and moving forward,” was given by Richard Baum, MD, PhD, professor of nuclear medicine, chair, and clinical director at the Theranostics Center for Molecular Radiotherapy and Molecular Imaging at the Zentralklinik Bad Berka (Germany). Johannes Czernin, MD, professor of molecular and medical pharmacology and chief of the Ahmanson Translational Imaging Division at the University of California Los Angeles David Geffen School of Medicine and editor-in-chief of *The Journal of Nuclear Medicine*, spoke on “Imaging with a purpose: The future of nuclear medicine, molecular imaging, and therapy.”

SNMMI’s new Value Initiative was introduced at the meeting. The initiative addresses 5 critical domains that will guide the society’s strategic plan over the next several years: quality of practice, research and development, workforce pipeline, advocacy, and outreach.

The society introduced a new feature, SNMMI TV, at this year’s meeting. This feed included daily coverage of meeting highlights and interviews on topics ranging from theranostics and the Clinical Trials Network to patient advocacy and molecular imaging applications in neurology and cardiology. Many of the videos are available on the SNMMI YouTube site at [www.youtube.com/user/SNMchannel1](http://www.youtube.com/user/SNMchannel1).

## Image of the Year

Each year, SNMMI chooses an image that exemplifies the most promising advances in the field of nuclear medicine and molecular imaging. The 2017 SNMMI Image of the Year was chosen from more than 2,000 abstracts submitted to the meeting and voted on by reviewers and society leadership. The image is a composite illustrating the technologies supporting “Preclinical evaluation of dual-labeled prostate-specific membrane antigen (PSMA) inhibitors for the diagnosis and therapy of prostate cancer” (SNMMI abstract 531). The image summarizes research presented by Baranski et al. from the German Cancer



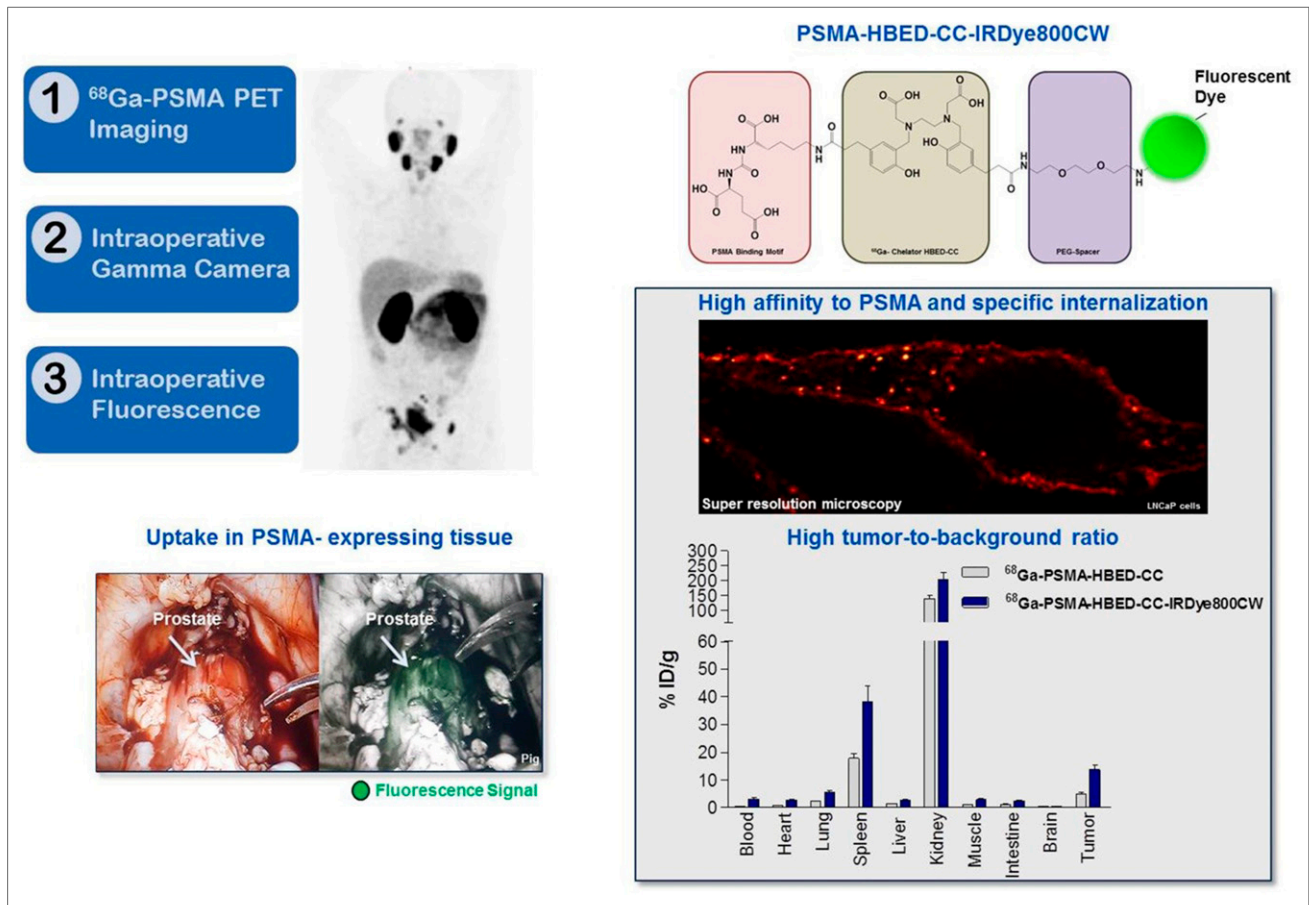
At the SNMMI Annual Meeting in Denver, CO



Richard Baum, MD, PhD

Research Center and University Hospital Heidelberg (both in Heidelberg, Germany), based on work supported by the VIP+ fund from the German Federal Ministry of Education & Research.

The proposed methodology outlined in the image combines preoperative staging with  $^{68}\text{Ga}$ -PSMA-11 PET/CT, followed by intraoperative gamma and fluorescence guidance to improve the accuracy of PSMA-positive tumor lesion detection. In their presentation, the authors focused on selection and validation of optical dye conjugates with optimal PSMA-binding properties. The optical/dye conjugates PSMA-HBED-CC-FITC, -AlexaFluor488, -STARRED, and -IRDye800CW were synthesized by conjugating to PSMA-11. The respective PSMA-binding properties were analyzed in a competitive cell-binding assay followed by internalization experiments in PSMA-expressing androgen-sensitive human prostate adenocarcinoma cells. Stimulated emission depletion microscopy was used to further investigate internalization and intracellular fluorescence distribution characteristics. In vivo validation studies were performed in tumor-bearing mice and healthy pigs. Results showed that specific fluorescent signal in PSMA-expressing tissue could be detected in vivo for all of the conjugates and especially for the most clinically relevant candidate, PSMA-HBED-CC-IRDye800CW. The authors concluded that their results emphasize “the potential of dual-labeled PSMA inhibitors to provide sensitive pre-, intra- and posttherapeutic



**2017 SNMMI Image of the Year:** Dual-labeled prostate-specific membrane antigen (PSMA) inhibitors for diagnosis and therapy of prostate cancer. The multicomponent process includes  $^{68}\text{Ga}$ -PSMA-11 PET imaging (image: courtesy of Afshar-Oromieh et al., *Eur J Nucl Med Mol Imaging*. 2013;40[4]:486–495) (top left) and intraoperative gamma camera and fluorescence imaging (bottom left). In in vitro and preclinical studies, the authors compared fluorescent conjugates to determine which had high affinity to PSMA (top right) and were specifically internalized with high tumor-to-background ratios (bottom right) (stimulated emission depletion microscopy image courtesy of J. Matthias, German Cancer Research Center, Heidelberg, Germany).

detection of cancer lesions, thereby improving the treatment of prostate cancer.”

“We are deeply honored to receive this award, and I would like to thank all team members who contributed to this interdisciplinary work,” said lead author Ann-Christin Baranski, a doctoral student at the German Cancer Research Center. “As resection of lymph node metastases has considerable impact on the outcome of metastatic prostate cancer patients, the aim of our study is to improve the intraoperative accuracy of detecting PSMA-positive tumor lesions.”

“There has been a huge effort to improve care of prostate cancer patients using molecular imaging,” said Satoshi Minoshima, MD, PhD, chair of the SNMMI Scientific Program Committee and SNMMI vice president–elect. “The study presented by Ann-Christin Baranski clearly demonstrates that combined PET imaging, gamma detection, and optical imaging can help not only preoperative staging of the disease but also intraoperative guidance of metastatic lymph node dissection. We anticipate that such hybrid cancer detection methods will become prevalent in the near future and contribute significantly to the care and management of prostate cancer patients.”