

SNMMI Annual Meeting Spotlights New Innovations and Expanding Horizons

More than 5,500 physicians, technologists, scientists, and exhibitors gathered at the 66th SNMMI Annual Meeting, June 22–25, at the Anaheim (CA) Convention Center. The meeting included 80 scientific sessions with 740 podium presentations and more than 140 categorical and continuing education sessions. The large and lively exhibit hall also included more than 1,100 scientific posters.

The opening ceremony, led by Satoshi Minoshima, MD, PhD, SNMMI president, and Norman Bolus, MSPH, CNMT, SNMMI-TS president, provided an overview of the meeting and was followed by a welcome reception and exhibit hall opening. The 2019 Highlight Country was Canada, and François Lamoureux, MD, MSc, president of the Canadian Association of Nuclear Medicine (CANM), hosted a special reception after the opening ceremony. CANM also sponsored 4 sessions at the meeting in partnership with SNMMI: Binary V/Q scintigraphy in North America, Telenuclear medicine: The success stories, Technological advances in PET/CT imaging: What you really need to know, and Theranostics 101: Practical clinical aspects.

At the first plenary session on June 23, the Henry N. Wagner, Jr., MD, Lecture was given by Markus Schwaiger, MD, Managing Medical Director of the Klinikum rechts der Isar, Technical University of Munich (Germany). His presentation was titled “From molecular imaging to deep theranostics.” Also on June 23, Patient Education Day welcomed patients and caregivers to an overview of nuclear medicine, radiation safety, and clinical trials, followed by break-out sessions focusing on prostate cancer, neuroendocrine tumors, and nuclear cardiology.

The June 24 plenary session featured the Hal O. Anger Lecture from Terry Jones, DSc, clinical professor of diagnostic radiology at the University of California, Davis, who discussed the ways in which “The Anger principle ‘trailblazed’ the way to total body PET and its future applications.” The session also



Markus Schwaiger, MD, delivered the Henry N. Wagner, Jr., MD, Lecture at the 2019 SNMMI Annual Meeting on June 23.



At the SNMMI Annual Meeting in Anaheim, CA.

included the installation of the new 2019–2020 SNMMI president, Vasken Dilsizian, MD, and the induction of 13 new SNMMI fellows.

On the afternoon of June 25, 4 distinguished nuclear medicine experts presented the annual Highlights Lectures, summarizing scientific achievements presented at the meeting. These highlights will appear serially in upcoming Newsline issues. Numerous awards and honors were presented during the meeting, and these will also be covered in Newsline.

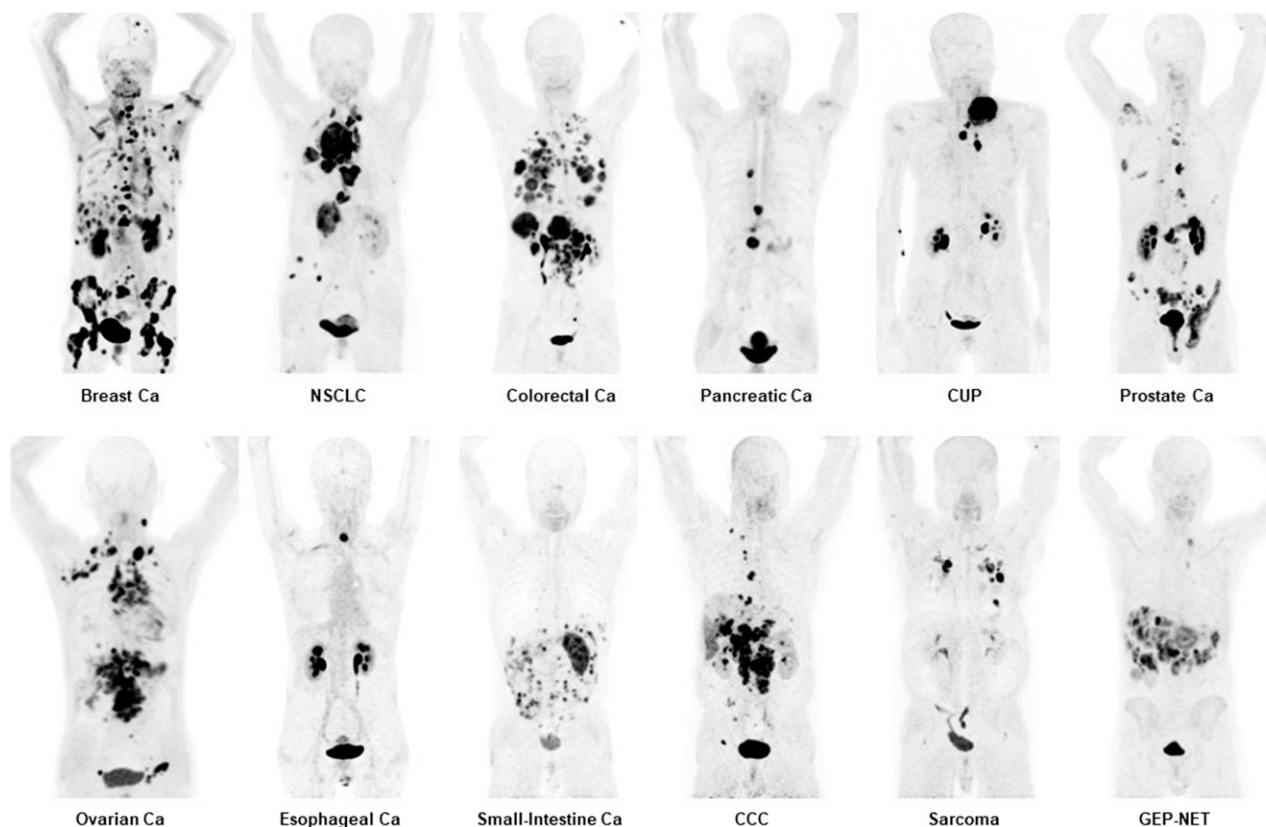
Throughout the meeting the continuing education program once again featured the popular “Nuts and Bolts” sessions in each track, covering a wide variety of subspecialty areas and providing practical information to apply in the clinic.

2019 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 2019 SNMMI Image of the Year was chosen from more than 2,300 abstracts submitted to the meeting and voted on by reviewers and society leadership. The 2019 Image of the Year came from a team of researchers at University Hospital Heidelberg (Germany), who reported on a single radiotracer that can identify nearly 30 types of cancer, allowing for new applications in noninvasive diagnosis, staging, and treatment. The results of the study showed that PET/CT with a fibroblast-activation protein inhibitor (FAPI) tracer produced images with exceptionally clear tumor delineation and high contrast. The 2019 SNMMI Image of the Year is a composite of ^{68}Ga -FAPI-PET/CT images demonstrating uptake in 12 tumor entities.

FAPI is overexpressed from cancer-associated fibroblasts in several tumor entities, and the study was intended to quantify tumor uptake on FAPI PET/CT in various primary and metastatic tumors to identify the most promising future applications. The retrospective study included images from 80 patients with histopathologically proven metastases or

FAP-I-PET in different kinds of cancer



SNMMI 2019 Image of the Year: ^{68}Ga -FAP-I-PET/CT in patients reflecting 12 different tumor entities. Ca = cancer; NSCLC = non-small cell lung cancer; CUP = carcinoma of unknown primary; CCC = cholangiocarcinoma; GEP-NET = gastroenteropancreatic neuroendocrine tumor. Image was created with contributions from Clemens Kratochwil, Paul Flechsig, Thomas Lindner, Labidi Abderrahim, Annette Altmann, Walter Mier, Sebastian Adeberg, Hendrik Rathke, Manuel Röhrich, Hauke Winter, Peter Plinkert, Frederik Marme, Matthias Lang, Hans Ulrich Kauczor, Dirk Jaeger, Juergen Debus, Uwe Haberkorn, and Frederik L. Giesel, each of whom is affiliated with University Hospital Heidelberg (Germany).

radiologically unquestionable metastatic lesions of histologically proven primary tumors. The highest average SUV_{max} (>12) was found in sarcoma; esophageal, breast, and lung cancers; and cholangiocellular carcinoma. The lowest uptake (average $\text{SUV}_{\text{max}} < 6$) was seen in pheochromocytoma; renal cell, differentiated thyroid, and adenoid-cystic cancers; and gastric carcinoma. The average SUV_{max} of hepatocellular, colorectal, head and neck, ovarian, and pancreatic carcinoma was intermediate (>6 – <12). Background activity was low ($\text{SUV} 2$), with tumor-to-background ratios increased >2 -fold in the intermediate and >4 -fold in the high intensity uptake groups.

In contrast to ^{18}F -FDG PET/CT imaging, FAP-I-PET/CT can be performed without specific patient preparation after a very short uptake time (~ 10 minutes) and thereby might diminish inconvenience to patients and accelerate workflow. In addition to identifying tumors, the research is also important because of its implications for cancer treatments in the future. “Immunotherapies can be highly effective in some patients and without any antitumor activity in other patients,” noted author Uwe Haberkorn, MD, professor and chair of nuclear medicine at the University Hospital Hei-

delberg and the German Cancer Research Center (both in Heidelberg, Germany). “Currently, predictive biomarkers for appropriate patient selection are limited. Due to its biological role, FAP-targeted diagnostics have the potential for use as a predictive biomarker.” Haberkorn continued by noting that “The FAP ligands used contain the DOTA chelator, which enables labeling with therapeutic radionuclides. The observation that the ligand accumulates in several important tumor entities potentially indicates a huge field of therapeutic application to be evaluated in the future.”

Umar Mahmood, MD, PhD, chair of the SNMMI Scientific Program Committee, noted, “The Image of the Year highlights the novel ability to image a druggable protein expressed by reactive fibroblasts found in a variety of tumors. Imaging with new tracers such as the one developed—and very nicely demonstrated—in this study in a wide variety of cancer types shows the power of molecular imaging to characterize tumors. The Image of the Year epitomizes the great progress made in our field in developing new imaging agents to help optimize cancer therapy for individual patients through such noninvasive characterization.”