

**12th Congress of the World Federation of Nuclear Medicine  
and Biology**

20-24 April 2018

Melbourne Convention and Exhibition Centre

**TRACK: MOLECULAR IMAGING**

**Saturday 21 April 2018**

10:30-12:00	<b>Molecular Imaging 1: Overview</b>	<b>Speaker</b>	<b>Time</b>
	<b>Chair: Prof Anna Wu</b>		
	<b>Overview of Molecular Imaging</b> Learning Objectives: 1. Understand how basic principles of Nuclear Medicine are being applied to other Molecular Imaging modalities 2. Understand basics of targeted molecular ultrasound imaging 3. Understand clinical translation of targeted microbubbles with recent first-in-man results 4. Understand new emerging areas of molecular imaging including Raman optical imaging.		
10:30-11:00		Dr. Sanjiv Sam Gambhir, Stanford University School of Medicine, USA	30 mins
	<b>Optical and Optoacoustic Imaging</b> Learning objectives: 1. Understand the differences between optical and optoacoustic imaging 2. Discuss advances fluorescence molecular imaging 3. Identify areas of application for fluorescence clinical imaging 4. Identify areas of application of Multispectral Optoacoustic Tomography		
11:00-11:30		Prof. Vasilis Ntziachristos, Technical University of Munich, Germany	30 mins
	<b>Imaging Immune Responses</b> Learning objectives: 1) Identify aspects of immune responses that are amenable to molecular imaging in vivo, including metabolic shifts, immune cell subsets, and biomarkers of activation and function. 2) Describe current and emerging molecular imaging probes and strategies for imaging immune responses. 3) Discuss clinical settings where whole-body, non-invasive profiling of immune responses can impact drug development and patient management, particularly in immuno-oncology.		
11:30-12:00		Prof. Anna Wu, University of California, Los Angeles, USA	30 mins

Sunday 22 April 2018

10:30-12:00	<b>Molecular Imaging 2: Neuroscience</b> Chair: Prof Steven Meikle		
10:30-11:00	<b>Probe Development - Small Molecule Agents in Neuroscience</b> Learning objectives: 1. Evaluation of small molecule agents suitable for use as probes in neuroscience. 2. Understand the applications in molecular imaging	Prof. Michael Kassiou, University of Sydney, Australia	30 min
11:00-11:30	<b>Instrumentation for Preclinical and Clinical Neuroimaging</b> Learning objectives: 1) Identify the key scientific and clinical questions in neuroscience that molecular imaging may play a role in addressing 2) Discuss the molecular imaging modalities most relevant to those questions and their relative advantages and disadvantages 3) Highlight recent advances in molecular imaging instrumentation of relevance to basic and clinical neuroscience.	Prof. Steven Meikle, The University of Sydney, Australia	30 min
11:30-12:00	<b>Measuring the Dopamine Response to Cigarette Smoking in Men and Women with <sup>11</sup>C-<i>l</i>-DOPA PET. Tuning the Kinetic Model to Capture Dopamine Fluctuations .</b> Learning Objectives 1. Understand the assumptions about neurotransmitters that underlie conventional kinetic analysis of PET data. 2. Understand the advantage of the <sup>11</sup> C- <i>l</i> -DOPA PET model or other models that include time-varying parameters. 3. Understand the connection between the dopamine findings and current understanding of smoking addiction in men and women.	Prof Evan Morris, Yale University, New Haven, USA	30 min
1615 - 1745	<b>Molecular Imaging 3; Probe Development</b> Chair: Prof Jung-Joon (John) Min		
16:15-16:45	<b><sup>18</sup>F-Labeled Fluoroalkylphosphonium Salts: Novel Myocardial Perfusion Agents for PET</b> Learning objectives: 1. Evaluation of myocardial perfusion agents. 2. Understand application in Small animal PET imaging	Dr. Dong-Yeon Kim, Hwasun, Korea	30 mins
16:45-17:15	<b>Probe Development: Antibodies and ImmunoPET</b> Learning objectives: 1) Identify key properties of antibodies that can be modified/improved to produce probes optimized for in vivo imaging. 2) Discuss applications of new immunoPET tracers to address challenges in oncology and immunology. 3) Describe the process and potential of translating immunoPET probes into clinical use.	Prof. Anna Wu, Los Angeles, USA	30 mins
17:15-17:45	<b>Theranostics for the Invasive Cancer Phenotype: uPAR PET and PRRT</b> Learning objectives: 1. To understand the concept of theranostics 2. To understand the workflow in development of new theranostic pairs 3. To understand the role of uPAR in the metastatic process and how this can be used for risk stratification and as a therapeutic target	Prof. Andreas Kjaer, National University Hospital & University of Copenhagen, Denmark	30 mins

## Monday 23 April 2018

10:30-12:00 Molecular Imaging 4-APPLICATIONS			
Chair: Prof Steven Meikle			
10:30-11:00	<b>Oncolytic Bacteria and Theranostic Strategies</b> Objectives 1. To understand the principle of bacteria-mediated anticancer immunity 2. To learn molecular imaging techniques for visualization of bacteria in living subjects 3. To learn imaging reporters for bacterial cell tracking	Prof Jung-Joon (John) Min, Hwasun, Korea	30 mins
11:00-11:30	<b>Molecular Imaging Probe Development – Reporter Genes</b> Learning objectives 1. Understand the types and the features of reporter genes for molecular imaging 2. Design reporter genes for nuclear imaging - optimization and application.	Prof Hye Won (Helen) Youn, Seoul National University Cancer Hospital, Seoul, Korea	30 mins
11:30-12:00	<b>PET Imaging of Neuroinflammation: Visualizing Neuroimmune Interactions from Mouse to Man</b> Upon completion of this talk, participants should be able to: 1. Discuss the common molecular and cellular targets for imaging neuroinflammation 2. Describe the key strengths and limitations of current PET imaging strategies for detecting microglial activation.	A/Prof Michelle James Stanford University School of Medicine, Stanford USA	30 mins
1400 - 1530 Molecular Imaging 5: Next Generation Molecular Imaging			
Chair: Prof Dong Soo Lee			
14:00-14:30	<b>NewGen Molecular Imaging Technology-Small Animal PET/MRI</b> Learning Objectives: After listening the talk, the learner should be able to: 1. List the advantages of simultaneous PET/MR imaging in small animals 2. List the advanced scintillation detectors used in PET/MR imaging.	Prof. Jae Sung Lee, Seoul National University College of Medicine, Seoul, Korea	30 mins
14:30-15:00	<b>Molecular Imaging-Translational PET/MRI</b> Learning Objectives: 1. Be familiar with instrumentation and techniques for translational PET/MRI research 2. Develop an understanding of new joint analytical methods for analysing simultaneously acquired PET/MR datasets 3. Be able to recognise opportunities for new translational PET/MRI research applications.	Prof. Gary Egan, Monash Univeristy, Melbourne, Australia	30 mins
15:00-15:30	<b>Multimodality Imaging</b> Learning Objectives: 1) Understand the basics of various molecular imaging techniques 2) Understand how to design and prepare multimodality imaging agents 3) Understand how different imaging techniques can be used to provide complementary and/or synergistic information	Prof Weibo Cai, University of Wisconsin–Madison, USA	30 mins

## Tuesday 24 April 2018

1300 - 1430 Molecular Imaging 6			
Chair: Prof Anna Wu			
13:00-13:30	<b>Molecular Imaging Probe Development - Nanoparticles</b> Learning Objectives: 1. define radionanomedicine as 'combined nuclear and nanomedicine' 2. explain advantage of radionanomedicine as tracer technology 3. understand the troubleshooting of radiolabeling of nanomaterials and their consequences of surface modificaton with targeting ligands	Prof Dong Soo Lee, Seoul National University, Korea	30 mins
13:30-14:00	<b>Image-guided Therapy/Theranostics</b> Learning Objectives: 1. Understand advantages of nanoparticles for theranostics 2. Understand potential applications	Dr. Jan Grimm, Memorial Sloan Kettering Cancer Centre, New York, USA	30 mins
14:00-14:30	<b>Molecular Imaging in the Future</b> Learning Objectives: - confirmed attendance ILOs pending	Prof. Bernd Pichler, University of Tübingen, Germany	30 mins