

**12th Congress of the World Federation of Nuclear Medicine
and Biology**
20-24 April 2018
Melbourne Convention and Exhibition Centre

TRACK: Radiopharmaceutical Sciences

Saturday 21 April 2018

14:00-15:30		Radiopharmaceutical Sciences 1: Alpha Radiopharmaceutical Therapy	
	Chair: Prof Sally Schwarz, Washington Univeristy School of Medicine, USA / Prof. Clemens Decristoforo, Medical University Innsbruck, Innsbruck, Austria		
14:00-14:20	Targeted Alpha Particle Radiotherapy: Prospects and Problems Intended learning objectives : 1) To understand the impact of radionuclide supply and radiochemistry on targeted alpha particle therapy (TAT) 2) To summarize the current status of clinical studies with TAT	Prof. Michael Zalutsky, Duke University Medical Center, Durham, NC, USA	20 min
14:20-14:40	The High-resolution Alpha Camera as a Tool for Developing Targeted Alpha Therapy Intended learning objectives : 1) To understand the importance of knowing the biodistribution of alpha-labeled radiotherapeutics, 2) To understand the challenges associated with measuring the biodistribution of alpha-emitting radiotherapeutics.	Dr Tom Bäck, University of Göteborg, Göteborg, Sweden	20 mins
14:40-15:00	Geant4: a Monte Carlo Code for Dosimetry of Radiopharmaceuticals Learning objectives: 1) Geant4 physics models for nuclear medicine 2) Geant4 geometry capability: from human anatomy to subcellular structures. 3) Geant4 for dosimetry, micro- and nano- dosimetry.	Dr Susanna Guatelli, University of Wollongong, Australia	20 mins
15:00-15:20	Practical Considerations for Bringing Alpha-emitting Radiopharmaceuticals into the Clinic Learning objectives: 1. Understand the regulatory requirements for investigational radiopharmaceuticals labeled with alpha emitters 2. Understand how to measure injected dose for alpha emitters 3. Understand the safety considerations for handling alpha emitting radionuclides.	Dr Jessie Nedrow, John Hopkins Univeristy, MD, USA	20 mins
15:00-15:30	Questions		30 mins

Sunday 22 April 2018

Radiopharmaceutical Sciences 2 - Moving from the lab to the patient			
14:00-15:30	Chair: Prof Dr Renata Mikołajczak, National Centre for Nuclear Research, Otwock, Poland / Prof. Michael Zalutsky, Duke University Medical Center, Durham, NC, USA		
14:00-14:20	Moving From the Lab to the Patient in USA Learning objectives: 1. Learn about the path for translation of new imaging agents from the bench to the clinic 2. Learn about examples of recent agents that have been translated in the oncology setting	Prof Jason Lewis, Memorial Sloan-Kettering Cancer Center, New York, USA	20 mins
14:20-14:40	Moving Radiopharmaceuticals From the Lab to the Patient in Europe Learning objectives: 1. Understanding the regulatory framework for translating novel radiopharmaceuticals from bench to bedside 2. Listing the most important documents required for application of a clinical trial in Europe 3. Recognizing the preclinical requirements in the translation steps towards the clinic	Prof Clemens Decristoforo, Medical University Innsbruck, Innsbruck, Austria	20 min
14:40-15:00	Translating Radiopharmaceuticals From the Lab to the Patient in Australia Learning Objectives: 1. to inform the audience of the legislative framework in Australia that governs how medicines such as radiopharmaceuticals can be translated from the laboratory to clinical use, and 2. to facilitate comparative discussion about the differences between jurisdictions.	Dr Doug Smyth, South Australian Health & Medical Research Institute, Adelaide, Australia	20 mins
15:00-15:20	Moving From the Lab to the Patient in Asia Learning objectives: 1. Learn about the path for translation of new imaging agents from the bench to the clinic. 2. Learn about examples of recent agents that have been translated in the Parkinson and Alzheimer imaging agents. 3. Learn about examples of recent agents that have been translated in the tumor imaging agents.	Prof Dae Yoon Chi, Future Chem, Seoul, Korea	20 mins
15:00-15:30	Questions		30 mins

Monday 23 April 2018

Radiopharmaceutical Sciences 3 - Radiometal Production			
16:15-17:45	Chair: Prof Petr Hermann, Charles University, Prague, Czech Republic/ Dr Michelle Ma, King's College London & St Thomas' Hospital, London, UK		
16:15-16:35	On Biomedical Cyclotrons Learning objectives: 1. to understand various aspects of radiometal production in biomedical cyclotrons, 2. to understand the influence of radiometal production conditions on the final quality of radiometal, 3. At the requirements of biomedical cyclotrons to produce radiometals for medical use.	Dr Seung Dae Yang, Korean Atomic Energy Research Institute, Daejeon, Korea	20 min
16:35-16:55	Radiometal Production on High-energy Accelerators Learning Objectives 1. Explain the various production routes to the production of radioisotopes 2. Appreciate the issues with availability of parent isotopes for radioisotope generators 3. Compare isotope production strategies for therapeutic isotopes.	Dr Cathy Cutler, Brookhaven National Laboratory, Brookhaven, USA	20 mins
16:55-17:15	Radiometal Production: In Reactors Learning objectives: 1. to present various aspects of radiometal production in nuclear reactors, 2. to discuss the influence of radiometal production conditions: neutron flux, selection of target material and processing method on the final quality of radiometal, its specific activity and purity, 3. to present requirements for radiometals for medical use.	Prof Dr Renata Mikołajczak, National Centre for Nuclear Research, Otwock, Poland	20 mins
17:15-17:35	Radiometal Production via Photonuclear Reactions Learning objectives: 1. Explain photonuclear production routes for the production of radiometals. 2. Provide an appreciation for the difficulty in target preparation, processing and recycling. 3. Continue to communicate the usefulness of theranostic radioisotopes (a single radioisotope that has therapeutic and diagnostic properties).	Dr David Rotsch, Argonne National Laboratory, Argonne, USA	20 mins
17:35-17:45	Questions		30 mins

Tuesday 24 April 2018

10:30-12:00 Radiopharmaceutical Sciences 4 - Radiometal Chemistry			
	Chair: Dr Cathy Cutler, Brookhaven National Laboratory, Brookhaven, USA/ Dr David Rotsch, Argonne National Laboratory, Argonne, USA		
10:30-10:50	Radiometal Chemistry: The Chemistry Behind Emerging Radiometals for Theranostics Learning objectives: 1. Which coordination chemistry is required for various metal ions in radiochemistry 2. What to consider for theranostics based on metallic elements. -3. Are theranostics consisting from different radiometals possible?	Prof Petr Hermann, Charles University, Prague, Czech Republic	20 mins
10:50-11:10	New Chelators Enable One-step Kit-based Radiosynthesis of Receptor-Targeted Gallium-68 Radiopharmaceutical Participants will be able to: 1. understand current procedures for radiosynthesis and formulation of gallium-68 radiopharmaceuticals; 2. understand the role of chelators, including state-of-the-art chelators, in the field of gallium-68 radiopharmaceuticals; 3. select the best chemical tools for design of new radiopharmaceuticals based on gallium-68.	Dr Michelle Ma, King's College London & St Thomas' Hospital, London, UK	20 mins
11:10-11:30	The Coordination Chemistry of Zirconium Radiopharmaceuticals Learning Objectives 1. Summarize the chemistry of zirconium of relevance to its use in radiopharmaceuticals. 2. Integrate the concepts of zirconium coordination chemistry as it pertains to the preparation of effective diagnostics.	Prof. Paul Donnelly, Melbourne Australia	20 mins
11:30-11:50	New Chelators for Targeted Alpha-therapy: the Chemistry Driving Efficacy and Safety Intended learning objectives: 1. to understand coordination chemistry differences between radiometals currently considered for targeted alpha-therapy 2. gain a broad knowledge of the library of chelators available for radiolabeling biological targeting vectors 3. Gain a broad knowledge of current efforts to develop chelator chemistry with the goal of improving safety and efficacy.	Dr Rebecca Abergel, Lawrence Berkeley National Laboratory, Berkeley, USA	20 mins
11:50-12:00	Questions		10 mins
15:15-16:45 Radiopharmaceutical Sciences 5 - F-18 and C-11 Chemistry			
	Chair: Prof. Alan Packard, Boston Children's Hospital, USA/ Dr Seung Dae Yang, Korean Atomic Energy Research Institute, Daejeon, Korea		
15:15-15:35	New Approaches in C-11 Chemistry Learning objectives: 1. To learn about advantages and disadvantages of using carbon-11 tracers compared to fluorine-18 tracers 2. New labeling approaches in carbon-11 radiochemistry.	Prof Christer Halldin, Karolinska Institutet & Karolinska University Hospital, Stockholm, Sweden	20 mins
15:35-15:55	Cutting-edge Methods for the Synthesis of C-11 and F-18 Radiopharmaceuticals The official title of my talk is correct (Cutting edge-methods for the synthesis of ¹¹ C and ¹⁸ F-radiopharmaceuticals") Learning objectives : 1.How can PET radiochemists contribute to drug development with big pharma? 2. How can novel technologies be applied to synthesize unprecedented radiopharmaceuticals? 3. What is the value of new radiolabeled imaging agents in drug development?	Prof Neil Vasdev, , Massachusetts General Hospital & Harvard Medical School, Boston, USA	20 mins
15:55-16:15	New Approaches to Late-stage Radiolabeling of Bioactive Molecules Learning objectives: 1. Attendees will learn state-of-the-art approaches for labeling bioactive molecules with carbon-11 and fluorine-18. 2. Attendees will learn how to qualify radiotracers produced using these methods for use in clinical PET imaging studies.	Prof Peter Scott, University of Michigan, Ann Arbor, USA	20 mins
16:15-16:35	Meeting the Challenge of F-18-labeling of Peptides and Other Complex Molecules: Rapid, Wet, Easy, and One-step Learning objectives: 1) Appreciate the chemistry of trifluoroborate synthesis and isotope exchange that facilitates one-step wet ¹⁸ F-labeling. 2) Appreciate the concept of a "radiosynthon" which is defined as a prosthetic that is applied to a biomolecule to create a precursor that can be labeled in a single step. 3) Recognize key aspects of ¹⁸ F-organotrifluoroborates as distinct from other radioprosthetic groups: polar, anionic/zwitterionic, hydrophilic which generally lead to rapid clearance to give high contrast images. 4) Appreciate the potential for using various bioconjugation methods for installing a trifluoroborate radiosynthon in peptides to create precursors for one-step labeling.	Prof. David Perrin, The University of British Columbia, Vancouver, Canada	20 mins
16:35-16:45	Questions		10 mins