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TUESDAY, 14 MARCH, 2023

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18:45	Lung & X-Ray Imaging | SG 10 (DOPPLER (4th floor))

09:00 – 15:00

THERANOSTIC HORIZON | THERANOSTICS A SURE CURE FOR CANCER AFTER 100 YEARS? | SPOTSYMP (EUROPA SAAL (2ND FLOOR))

John Ronald (London, Canada); **Tim Witney** (London, UK)

Registration required (+20€).

THERANOSTICS can be defined as imaging that provides actionable information that enables novel therapies. The symposium will begin with a coherent overview of the history of theranostics and current clinical applications. The focus will be on new **preclinical and translational developments** in the field. The concept of theranostics has been used to treat patients with thyroid disease for many years, but **unprecedented advances have been made in the last 10 years**, and the use of theranostic agents in the clinic is increasing rapidly. The recent successes are based on radioactive ligands for imaging and therapy of neuroendocrine tumors and prostate cancer. **But the concept of theranostics is much broader...**

The programme is organized around four keynote speakers + excellent shorter talks from abstracts submission followed by a panel discussion "**Theranostics – a sure Cure for Cancer after 100 Years?**".

KEYNOTE SPEAKERS:

- Shawn (Xiaoyuan) Chen - Singapore
- Assaf Gilad - Michigan (USA)
- Cristina Müller - Villingen (Switzerland)
- Wolfgang Weber - Munich (Germany)

09:00 WELCOME & INTRODUCTION

09:15 THERANOSTICS – A SURE CURE FOR CANCER AFTER 100 YEARS?

Wolfgang Weber[1]

[1] Technical University of Munich, Department of Nuclear Medicine,, Munich, Germany

10:00 COFFEE BREAK

10:30 PSMA-RLT ENHANCES EFFICACY OF IMMUNE CHECKPOINT BLOCKADE IN A MOUSE MODEL OF PROSTATE CANCER

Magdalena Staniszewska[1], Marco Taddio[2], Kyle Current[2], Liu Wei[2], Christine Mona[2], Johannes Czernin[2], Katharina Lückerath[1]

[1] University Hospital Essen, Department of Nuclear Medicine, Essen, Germany

[2] UCLA, Department of Molecular and Medical Pharmacology, David Geffen School of Medicine, Los Angeles, United States of America

10:45 SYNTHETIC BIOLOGY CONSTRUCTS FOR IMAGING AND THERAPY

Assaf Gilad[1]

[1] Michigan State University, East Lansing, United States of America

11:30 MULTIMODAL IMAGING STRATEGIES FOR CHIMERIC ANTIGEN RECEPTOR (CAR) T CELL TRACKING

John Kelly[1], Veronica Dubois[2], Nourhan Shalaby[2], Olivia Sehl[2], Rafael Sanchez-Pupo[1], Ying Xia[1], Francisco Martinez[1], Qi Qi[3], Matthew Fox[3], Justin Hicks[3], Jonathan Thiessen[3], Timothy Scholl[1, 2], Paula Foster[1, 2], John Ronald[1, 2]

[1] University of Western Ontario, Robarts Research Institute, London, Canada

[2] University of Western Ontario, Department of Medical Biophysics, London, Canada

[3] Lawson Health Research Institute, London, Canada

11:45 STRATEGIES TO IMPROVE RADIOTHERANOSTIC CONCEPTS

Cristina Müller[1, 2]

[1] Paul Scherrer Institute, Center for Radiopharmaceutical Sciences, Villingen, Switzerland

[2] ETH Zurich, Department of Chemistry and Applied Bioscences, Zurich, Switzerland

12:30 PRECLINICAL EVALUATION OF [$^{44/47}$SC]-SC-AAZTA-TATE AS A THERANOSTIC PAIR FOR PET IMAGING AND PEPTIDE RECEPTOR RADIOTHERAPY (PRRT) IN A MURINE PANCREAS TUMOR MODEL

Federico Maisano[1], Simona Ghiani[1], Zsolt Baranyai[1], Dezső Szikra[3, 4], Gábor Nagy[3], Adrienn Vágner[3], Suresh Pandey[2], Alessandro Maiocchi[1]

[1] Bracco Imaging, Bracco Research Centre, Colleretto Giacosa, Italy

[2] Bracco Diagnostic Inc., Monroe Twp., United States of America

[3] Scanomed Ltd., Debrecen, Hungary

[4] University of Debrecen, Medical Imaging Clinic, Debrecen, Hungary

12:45 LUNCH BREAK

13:15 CANCER NANOTHERANOSTICS

Xiaoyuan Chen[1]

[1] National University of Singapore, Department of Diagnostic Radiology, Singapore, Singapore

14:00 DUAL P- AND E-SELECTIN DNA APTAMER FOR IMAGING ACUTE BOWEL INFLAMMATION USING ULTRASOUND MOLECULAR IMAGING

Una Goncin[1], Ron Geyer[2], Steven Machtaler[1]

[1] University of Saskatchewan, College of Medicine, Medical Imaging, Saskatoon, Canada

[2] University of Saskatchewan, College of Medicine, Department of Pathology and Laboratory Medicine, Saskatoon, Canada

14:15 PANEL DISCUSSION

10:30 – 11:15

TO MENTEE OR NOT TO MENTEE: ALL ABOUT MENTORING | THINK TANK 01 (MOZART 2 (GROUND FLOOR))

Sophie Poty (Montpellier, France); **Sophie Stotz** (Tuebingen, Germany)

Think Tank Sessions are organized by the **young ESMI Groups** and open to all EMIM attendees.

Many successful careers are accompanied by mentors.

- What are the prerequisites to be a good mentee?
- And how to find a mentor that suits the own needs and expectations?
- What are the advantages of a formal mentorship?

These and more questions will be answered in this Think Tank session. These and more questions will be answered in the yESMI Think Tank session where we will have an open discussion with **Frauke Alves**, an experienced mentor from the imaging community, and **Jessica Bridoux** and **Yi Chen**, 1st generation mentees of the ESMI mentoring programme.

Benefit from our excellent experts and join the Think Tank session – your mentor might be there as well!

10:30 – 11:15

COLLABORATIONS ACROSS LABS, CLINICS & INDUSTRY - ANSWERS TO FAQS | THINK TANK 02 (TRAKL (3RD FLOOR))

Lara Garcia Varela (Santiago De Compostela, Spain); **Mario González-Arjona** (Madrid, Spain)

Think Tank Sessions are organized by the **young ESMI Groups** and open to all EMIM attendees.

We invite you to an open discussion with experts from different backgrounds on stage tackling the following questions - plus all you bring to the table:

- How to initiate a collaboration?
- how to manage the collaboration?
- How to handle/avoid potential problems?
- Hints on troubleshooting and all their differences in academia, industry and clinic.

We welcome on stage:

- Beatriz Salinas, Madrid
- Susanne Kossatz, Munich
- Daniel Razansky, Zurich
- Geoffrey Warnock, Bruker/pmod

10:30 – 11:15

GOING GREEN: SUSTAINABILITY IN THE LAB | THINK TANK 03 (DOPPLER (4TH FLOOR))

Giorgia Zambito (Rotterdam, Netherlands); **Ruud Ramakers** (Utrecht, Netherlands)

Think Tank Sessions are organized by the **young ESMI Groups** and open to all EMIM attendees.

Global warming represents one of the biggest threats to the well-being of mankind. Paradoxically, while scientific research is instrumental for solving the imminent climate crisis, our activities contribute significantly to anthropogenic climate change.

How can this be changed?

Logan Hodgskiss from Green Labs Austria talks about how to change the current resource management status quo and offer guidelines for a transition to more environmentally aware research practices by reforming how labs and scientists think about energy consumption, plastic consumption, and recycling. With the goal to make sustainable research practices a natural part of daily work and passion for scientists of all disciplines.

The session ends with Q&A and discussion.

11:30 – 15:00

ADVANCED PROBE DEVELOPMENT & CHEMISTRY | ES 01 (MOZART 1 (GROUND FLOOR))

Amnon Bar Shir (Rehovot, Israel); **Roger Schibli** (Villingen, Switzerland); **Mirkka Sarparanta** (Helsinki, Finland)

Registration required (+10€). Educational Sessions are not only meant for early-stage researchers, they are open to all who wish to extend/update their knowledge.

Abstracts contain learning objectives and recommended publications.

11:30 OPTICAL CONTRAST AGENTS: HISTORY, REGULATORY AND FUTURE PROJECTIONS.

Arthur Pétusseau[1], Brian Pogue[2, 1]

[1] Dartmouth College, Thayer School of Engineering, Hanover, United States of America

[2] University of Wisconsin Madison, Department of Medical Physics, Madison, United States of America

12:00 MRI RESPONSIVE AGENTS

Andre F. Martins[1, 2, 3]

[1] University Hospital Tübingen, Werner Siemens Imaging Center, Tübingen, Germany

[2] Cluster of Excellence iFIT (EXC 2180) "Image-Guided and Functionally Instructed Tumor Therapies,", Tübingen, Germany

[3] German Cancer Consortium (DKTK), German Cancer Research Center (DKFZ), Heidelberg, Germany

12:30 MRI CONTRAST AGENTS- ALTERNATIVES TO GADOLINIUM

Eva Jakab Toth[1]

[1] CNRS, Centre de Biophysique Moléculaire, Orléans, France

13:00 COFFEE BREAK

13:30 THERANOSTIC APPROACHES IN NUCLEAR MEDICINE WITH METALLIC RADIONUCLIDES

Thomas Mindt[1]

[1] University of Vienna, Faculty of Chemistry / Institute of Inorganic Chemistry / Bioinorganic Radiochemistry, Vienna, Austria

14:00 BASICS AND CONCEPTS TO DEVELOP PET PROBES BASED ON CARBON-11 AND FLUOR-18

Verena Pichler[1]

[1] University of Vienna, Department of Pharmaceutical Sciences, Vienna, Austria

11:30 – 15:00

QUANTIFICATION IN MOLECULAR IMAGING | ES 02 (MOZART 2 (GROUND FLOOR))

Claudia Kuntner (Vienna, Austria); **Simon Walker-Samuel** (London, UK)

Registration required (+10€). Educational Sessions are not only meant for early-stage researchers, they are open to all who wish to extend/update their knowledge.

Abstracts contain learning objectives and recommended publications.

11:30 QUANTIFYING METABOLISM USING MRI

Mor Mishkovsky[1]

[1] Ecole Polytechnique Fédérale de Lausanne (EPFL), Laboratory for Functional and Metabolic Imaging (LIFMET), Lausanne, Switzerland

12:00 QUANTIFYING METABOLISM USING PET

Julia Mannheim[1, 2]

[1] University of Tuebingen, Department of Preclinical Imaging and Radiopharmacy, Werner Siemens Imaging Center, Tuebingen, Germany

[2] University of Tuebingen, Cluster of Excellence iFIT (EXC 2180) "Image Guided and Functionally Instructed Tumor Therapies", Tuebingen, Germany

12:30 QUANTIFYING METABOLISM WITH OPTICAL AND OPTOACOUSTIC IMAGING METHODS

Xose Luis Dean Ben[1]

[1] University of Zurich, Institute for biomedical engineering, Zurich, Switzerland

13:00 COFFEE BREAK

13:30 QUANTIFYING PERFUSION USING MRI

Frank Zöllner[1, 2]

[1] Heidelberg University, Medical Faculty Mannheim/ Computer Assisted Clinical Medicine, 68167, Germany

[2] Heidelberg University, Medical Faculty Mannheim/ Mannheim Institute for Intelligent Systems in Medicine, 68167, Germany

14:00 QUANTIFYING PERFUSION USING PET

Mark Lubberink[1]

[1] Uppsala University, Surgical Sciences / Nuclear Medicine & PET, Uppsala, Sweden

14:30 QUANTIFYING PERFUSION WITH LIGHT AND ULTRASOUND

Zhenyue Chen[1, 2], **Daniel Razansky**[1, 2]

[1] University of Zurich, Faculty of Medicine, Zurich, Switzerland

[2] ETH Zurich, Department of Information Technology and Electrical Engineering, Zurich, Switzerland

11:30 – 15:00

INFLAMMATION & INFECTION | ES 03 (TRAKL (3RD FLOOR))

Mangala Srinivas (Wageningen, Netherlands); **Vladimir Ponomarev** (New York, USA)

Registration required (+10€). Educational Sessions are not only meant for early-stage researchers, they are open to all who wish to extend/update their knowledge.

Abstracts contain learning objectives and recommended publications.

11:30 INFLAMMATION: THE GOOD, THE BAD AND THE UGLY AND HOW TO IMAGE IT.

Monique Bernsen[1]

[1] Erasmus MC, AMIE Core Facility, Rotterdam, Netherlands

12:15 IMAGING OF INFECTION – TOWARDS FASTER DIAGNOSIS OF BACTERIAL INFECTIONS

Jan Maarten van Dijl[1]

[1] University of Groningen, University Medical Center Groningen, Medical Microbiology and Infection Prevention, Groningen, Netherlands

13:00 COFFEE BREAK

13:30 MOLECULAR IMAGING OF INFECTION AND INFLAMMATION: POTENTIAL, CHALLENGES AND REWARDS

Dima Hammoud[1]

[1] National Institutes of Health, Center for Infectious Disease Imaging, Radiology and Imaging Sciences, Bethesda, Maryland, United States of America

14:15 CAREER RESEARCH LINE ON INFECTION AND INFLAMMATION – FOCUS MAGNETIC RESONANCE AND OPTICAL IMAGING

Uwe Himmelreich[1]

[1] KU Leuven, Imaging and Pathology, Leuven, Belgium

11:30 – 15:00

MULTISCALE & MULTIDIMENSIONAL CELLULAR IMAGING | ES 04 (DOPPLER (4TH FLOOR))

Bettina Weigelin (Tübingen, Germany); **Colinda Scheele** (Leuven, Belgium)

Registration required (+10€). Educational Sessions are not only meant for early-stage researchers, they are open to all who wish to extend/update their knowledge.

Abstracts contain learning objectives and recommended publications.

11:30 MECHANICAL FORCE UNPINS THE T-CELL ACTIVATION

Marco Fritzsche[1]

[1] University of Oxford, Oxford, United Kingdom

12:15 ADVANCED LIGHT MICROSCOPY: UNDERSTANDING CELL BEHAVIOR AND CELL DYNAMICS IN LIVE TISSUES

Kurt Anderson[1]

[1] The Francis Crick Institute, Crick Advanced Light Microscopy (CALM), London, United Kingdom

13:00 COFFEE BREAK

13:30 HIGHLY MULTIPLEXED TISSUE IMAGING – DECIPHERING IMMUNOSUPPRESSIVE TISSUE NICHES IN PEDIATRIC CANCERS

Sophia Scheuermann[1, 2]

[1] University Children's Hospital Tübingen, Paediatrics I - General Paediatrics, Haematology and Oncology, Tübingen, Germany

[2] Excellence cluster iFIT (EXC 2180), Tübingen, Germany

13:50 MULTISCALE IMAGING TO STUDY IMMUNOTHERAPY OF CANCER BONE METASTASIS

Martina Giampetraglia[1, 2], Max Zimmermann[1, 2], Gina Dunkel[1, 2], Bettina Weigelin[1, 2]

[1] University of Tübingen, Werner Siemens Imaging Center, Preclinical Imaging and Radiopharmacy, Tübingen, Germany

[2] University of Tübingen, Cluster of Excellence iFIT (EXC 2180) "Image-Guided and Functionally Instructed Tumor Therapies", Tübingen, Germany

14:10 INTRAVITAL FRET IMAGING AND BIOSENSORS – UNDERSTANDING TUMOR CELL SIGNALLING IN LIVE TISSUES

Max Nobis[1]

[1] VIB-KU Leuven Center for Cancer Biology, Department of Oncology, KU Leuven, Leuven, Belgium

14:30 COMPUTATIONAL METHODS FOR TIME-LAPSE IMAGE ANALYSIS – FROM IMAGES TO DATA

Maria Alieva[1, 2]

[1] Prinses Maxima Centrum, Utrecht, Netherlands

[2] Biomedical Research Institute "Alberto Sols" (CSIC-UAM), Madrid, Spain

15:15 – 16:45

STATE-OF-THE-ART OF MOLECULAR IMAGING | AN AUSTRIAN PERSPECTIVE | PRO 01 (EUROPA SAAL (2ND FLOOR))

Verena Pichler (Vienna, Austria); **Sebastien Couillard-Despres** (Salzburg, Austria)

This session is organized by the Austrian/Local Committee.

Welcome to Austria! Learn more about what happens here in MI research, experience the excellent speaker line-up and you may find a collaboration partner for your new project.

15:15 SIDEROPHORE BASED MOLECULAR IMAGING OF INFECTIONS

Clemens Decristoforo[1], Hubertus Haas[2], Milos Petrik[3]

[1] Medical University Innsbruck, Nuclear Medicine, Innsbruck, Austria

[2] Medical University Innsbruck, Biocenter, Innsbruck, Austria

[3] Palacky University, Institute of Molecular and Translational Medicine, Olomouc, Czech Republic

15:30 MULTIMODAL IMAGING AND OMICS ANALYSIS TO CHARACTERIZE SENESCENT CELLS

Martina Marchetti-Deschmann[1], Samuele Zoratto[1], Christoph Kremslehner[2], Florian Gruber[2]

[1] TU Wien, Vienna, Austria

[2] Medical University Vienna, Vienna, Austria

15:45 CHALLENGES IN QUANTITATIVE PRECLINICAL PET/MR

Claudia Kuntner-Hannes[1, 2]

[1] Medical University of Vienna, Department of Biomedical Imaging and Image-guided Therapy, Vienna, Austria

[2] Medical University of Vienna, Medical Imaging Cluster, Vienna, Austria

16:00 EXPANDING THE BIOMICAL HORIZON WITH CORRELATED MULTIMODAL IMAGING AS PROVIDED BY AUSTRIAN BIOIMAGING / CMI

Wolfgang Weninger[1]

[1] Medical University of Vienna, Division of Anatomy, Vienna, Austria

16:15 EXPLORING LIPID METABOLISM BY MRI

Clemens Diwoky[1]

[1] University of Graz, Institute of Molecular Biosciences, Graz, Austria

16:30 ON THE POTENTIAL OF AI FOR MOLECULAR IMAGING

Michael Gadermayr[1]

[1] Salzburg University of Applied Sciences, Information Technology and Digitalization, Puch/Salzburg, Austria

15:15 – 16:45

ALTERNATIVES TO GADOLINIUM BASED CONTRAST AGENTS IN MRI | PRO 02 (MOZART 1 (GROUND FLOOR))

Rachel Katz-Brull (Jerusalem, Israel); **Peter Gordebeke** (Vienna, Austria)

Project Sessions are organized by collaborative research projects.

PRO 02 is organized by "**AlternativesToGd**" - an Horizon 2020 project www.alternativestogd.eu.

THE PROJECT

AlternativesToGd brings together highly experienced engineers, physicists, chemists and radiologists to develop a radically new and innovative contrast agent for magnetic resonance imaging. These contrast agents that will be metal-free, small endogenous molecules, which are hyperpolarised to ensure high sensitivities even at very low doses.

15:15 INTRODUCTION TO THE ALTERNATIVESTOGD PROJECT AND OPTIMIZATION OF HYPERPOLARIZED MRI AGENTS

Rachel Katz-Brull

15:30 HYPERPOLARIZED [15N]UREA AS A POTENTIAL REPLACEMENT FOR GADOLINIUM CONTRAST AGENTS FOR MEASURING TISSUE PERFUSION

Adam Gaunt[1], Jianbo Cao[1], Arnaud Comment[2, 1], Kevin Brindle[1]

[1] University of Cambridge, CRUK Cambridge Institute, Cambridge, United Kingdom

[2] GE Healthcare, chalfont St Giles, Buckinghamshire, United Kingdom

15:40 PARAHYDROGEN HYPERPOLARIZED METABOLITES FOR BIOLOGICAL INVESTIGATIONS

Francesca Reineri[1]

[1] University of Torino, Dept. Molecular Biotechnology and Health Sciences, Torino, Italy

15:50 PULSE SEQUENCE FOR POLARIZATION TRANSFER FROM HYPERPOLARIZED ^{15}N TO ^{1}H IN [$^{15}N_2$]UREA OPTIMIZED FOR VOLUME COIL AND SURFACE COIL TRANSMIT USING A GENETIC ALGORITHM

Vencel Somai[1, 2], Adam Gaunt[1], Alan Wright[1], Kevin Brindle[1, 3]

[1] University of Cambridge, Cancer Research UK Cambridge Institute, Cambridge, United Kingdom

[2] University of Cambridge, Department of Radiology, Cambridge, United Kingdom

[3] University of Cambridge, Department of Biochemistry, Cambridge, United Kingdom

16:00 GRADIENT TRAJECTORIES FOR EFFICIENT SAMPLING AND MOTION COMPENSATION OF HYPERPOLARIZED MRI SIGNALS

Tobias Speidel[1]

[1] Ulm University Medical Center, Department of Internal Medicine II, Ulm, Germany

16:10 PROGRESS IN HYPERPOLARIZATION OF NUCLEAR SPINS THROUGH OPTICAL IRRADIATION OF NITROGEN-VACANCY CENTERS IN DIAMOND

Federico Gorrini[1, 2], Eleonora Cavallari[1], **Angelo Bifone**[1, 2]

[1] University of Turin, Turin, Italy

[2] Istituto Italiano di Tecnologia, Turin, Italy

16:20 EVOLUTION OF NANO- TO MACRO-CAPSULE DESIGN FOR CAPTURING WATER AND HYPERPOLARIZED ^{15}N-LABELED AGENTS

Stanislav Baluschev[1, 2], Yuri Avlasevich[1], **Katharina Landfester**[1]

[1] Max Planck Institute for Polymer Research, Department of Physical Chemistry of Polymers, Mainz, Germany

[2] Sofia University "St. Kliment Ochridski", Optics and Spectroscopy Department, Sofia, Bulgaria

16:30 INDEPENDENT X-NUCLEI T/R SYSTEMS – A JOINT WORK OF THE UNIVERSITY OF ULM AND RS2D

Volker Rasche[1], Tobias Speidel[1], Tobias Lobmeyer[1]

[1] Ulm University, Ulm, Germany

15:15 – 16:45

TRANSLATIONAL IMAGING IN DRUG SAFETY ASSESSMENT | PRO 03 (MOZART 2 (GROUND FLOOR))

Sandra Heskamp (Nijmegen, Netherlands); **Irma Mahmutovic Persson** (Lund, Sweden)

Project Sessions are organized by collaborative research projects.

PRO 03 is organized by "**TRISTAN**" - an IMI2 project www.imi-tristan.eu.

THE PROJECT

Imaging techniques are widely used in medicine to diagnose diseases and track how well a patient is responding to treatment. However, they are rarely applied to gain insight into toxicity issues early on in drug development. The TRISTAN project brings together academics, small biotechs, imaging and pharmaceutical companies with the goal of validating imaging biomarkers to assess the (mal)distribution of novel biologicals and toxicity of (potential) medicines.

15:15 INTRODUCTION TO TRANSLATIONAL IMAGING IN DRUG SAFETY ASSESSMENT

Sandra Heskamp

15:25 APPLICATIONS OF PET IMAGING IN DRUG DEVELOPMENT FOR CARDIOMETABOLIC DISEASES

Eduardo Fernandes[1]

[1] Novo Nordisk, Global Drug Discovery, Copenhagen, Denmark

15:45 PRECLINICAL MODELS AND IMAGING BIOMARKERS OF LUNG INJURY AND DIILD

Irma Mahmutovic Persson[1, 2]

[1] Lund University, Medical Radiation Physics, Institution of Translational Medicine, Malmö, Sweden

[2] Lund University, Lund University BioImaging Center (LBIC), Medical Faculty, Lund, Sweden

16:05 ASSESSING INTERSTITIAL LUNG DISEASE USING QUANTITATIVE IMAGING BIOMARKERS: RESULTS FROM THE TRISTAN STUDY

Paul Hughes[1], James Eaden[1], Marta Tibiletti[2], Nazia Chaudhuri[3], Sarah Skeoch[4], Ian Bruce[5, 6], John Waterton[2, 7], Stephen Bianchi[8], Geoff Parker[2, 9], Jim Wild[1, 10]

[1] University of Sheffield, POLARIS, Academic Radiology, Department of Infection, Immunity and Cardiovascular Disease, Sheffield, United Kingdom

[2] Bioxydyn, Manchester, United Kingdom

[3] Manchester University NHS Foundation Trust, North West Lung Centre, Manchester, United Kingdom

[4] Royal United Hospitals Bath NHS Foundation Trust, Royal National Hospital for Rheumatic Diseases, Bath, United Kingdom

[5] Manchester University NHS Foundation Trust, NIHR Manchester Biomedical Research Centre, Manchester, United Kingdom

[6] University of Manchester, Manchester Academic Health Science Centre, Centre for Musculoskeletal Research, Manchester, United Kingdom

[7] University of Manchester, Division of Informatics, Imaging & Data Sciences, Manchester, United Kingdom

[8] Sheffield Teaching Hospitals NHS Foundation Trust, Academic Directorate of Respiratory Medicine, Sheffield, United Kingdom

[9] University College London, Centre for Medical Image Computing, Department of Medical Physics and Biomedical Engineering, London, United Kingdom

[10] University of Sheffield, INSIGNEO Institute for in silico Medicine, Sheffield, United Kingdom

16:25 TOWARDS A QUALIFIED IMAGING BIOMARKER OF LIVER TRANSPORTER FUNCTION.

John Waterton[1, 2]

[1] Bioxydyn Ltd, MANCHESTER, United Kingdom

[2] University of Manchester, Imaging Sciences, MANCHESTER, United Kingdom

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15:15 – 16:45

ADVANCING MULTIPHOTON MICROSCOPY FOR DEEPER & FASTER BIOIMAGING | PRO 04 (TRAKL (3RD FLOOR))

Luigi Bonacina (Geneve, Switzerland); **Andrea Markus** (Goettingen, Germany)

Project Sessions are organized by collaborative research projects.

PRO 04 is organized by "**FAIR CHARM**" - an Horizon 2020 project www.faircharm.eu.

THE PROJECT

The development of **new therapeutic strategies** for different types of diseases requires dedicated instruments capable of encompassing biological processes in their entirety by monitoring them at all relevant **length- and timescales**.

FAIR CHARM aims at providing complementary imaging solutions based on **multiphoton microscopy** to capture in real-time the cellular and extracellular structures involved in disease onset and progression. This session will feature presentations on the use of nonlinear signals for tissue diagnostics along with the description of new technical solutions in terms of light sources and high-speed scanning approaches.

15:15 INTRODUCTION TO THE PROJECT & ADVANCING MULTIPHOTON MICROSCOPY FOR BIOIMAGING

Luigi Bonacina

15:20 DEVELOPMENT OF A FEMTOSECOND 1.3 – 1.7 µM SOURCE FOR NONLINEAR MICROSCOPY

Lukas Kontenis[1], Danielius Samsonas[1], Mantvydas Mikulis[1], Mikas Urbšas[1], Justas Uža[1], Vytautas Sinkus[1], Jonas Berzinš[1], Karolis Neimontas[1]

[1] Light Conversion, Vilnius, Lithuania

15:35 NON-LINEAR MULTIPHOTON MICROSCOPY – IMMUNO-ONCOLOGY APPLICATIONS

Fernanda Ramos-Gomes[1], M. Andrea Markus[1], **Frauke Alves**[1]

[1] Max-Planck-Institute for Multidisciplinary Sciences, Translational Molecular Imaging, Göttingen, Germany

15:43 SELECTED MULTIHARMONIC IMAGING APPLICATIONS IN THE CENTRAL AND ENTERIC NERVOUS SYSTEM

Milvia Alata[1], Zhiqing Zhang[1], **Pieter Vanden Berghe**[1]

[1] KU Leuven,, Leuven, Belgium

15:51 KEY CONTRIBUTION OF MULTI-HARMONIC IMAGING IN THE EVALUATION OF REGENERATIVE MEDICINE FOR MUSCLE DISEASES

Laurence Dubreil[1], Ibrahim Hassani[1], Thibaut Larcher[1], Isabelle Leroux[1], Cindy Schléder[1], Mireille Ledevin[1], Antoine Hamel[2], Armelle Magot[3], Yann Péréon[3], Karl Rouger[1]

[1] INRAE/Oniris UMR 0703 PAnTher, Oniris, Nantes, France

[2] Department of Pediatric Surgery, Mother and Child Hospital, Nantes, France

[3] Reference Center for Neuromuscular Diseases, Nantes University Hospital, Nantes, France

16:00 FAST IMAGING OF CELLS IN WHOLE BLOOD

Sebastian Karpf[1]

[1] Universität zu Lübeck, Institute for Biomedical Optics (BMO), Lübeck, Germany

16:15 TRANSLATION OF HIGHER HARMONIC GENERATION MICROSCOPY INTO THE CLINIC FOR TUMOR TISSUE ASSESSMENT

Marloes Groot[1]

[1] VU, Sciences/Physics, Amsterdam, Netherlands

15:15 – 16:45

IMAGINE! TUMOUR AND IMMUNOBIOLOGY IN 3D AND TIME | PRO 05 (DOPPLER (4TH FLOOR))

Peter Friedl (Nijmegen, Netherlands); **Anne Rios** (Utrecht, Netherlands)

Project Sessions are organized by collaborative research projects.

PRO 05 is organized by "**IMAGINE!**" - a multidisciplinary initiative by 19 Dutch top-scientists www.imagine-microscopy.nl.

THE PROJECT

Cells, life's basic building blocks, have been extensively studied, but how cells self-organise into tissues and how molecular processes inside cells enable tissue formation is poorly understood. IMAGINE! (Innovative Microscopy And Guidance of cells In their Native Environment) will bring together biology and technology

experts to address this major challenge by studying and manipulating cells at the molecular level in their native tissue environment.

15:15 ORGANOID CELLULAR CANCER IMMUNITY MODELS IN MOTION

Anne Rios[1]

[1] Princess Máxima Center, Utrecht, Netherlands

15:45 ENGINEERING AND IMAGING MESOSCOPIC 3D TUMOR MODELS WITH A SELF-ORGANIZING VASCULARIZED MATRIX

Federica De Lorenzi[1], Nadja Hansen[2], Benjamin Theek[1], Rasika Daware[1], Jan Schöneberg[2], Alexandros Marios Sofias[1], Twan Lammers[1], Horst Fischer[2], Fabian Kiessling[1]

[1] RWTH Aachen University Hospital, Institute for Experimental Molecular Imaging, Aachen, Germany

[2] RWTH Aachen University Hospital, Department of Dental Materials and Biomaterials Research, Aachen, Germany

16:00 SUBLETHAL T CELL HITS INDUCE MELANOMA CELL SENESCENCE DURING IMMUNO-THERMAL THERAPY

Oliver Hihn[1, 2], Esther Wagena[3], Felicia van der Flier[3], Stefan Kuehberger[3], Chrysanthi Kagiou[1], André Martins[1, 2], Bettina Weigelin[1, 2]

[1] Eberhard Karls University Tuebingen, Werner Siemens Imaging Center, Department of Preclinical Imaging and Radiopharmacy, Tuebingen, Baden-Württemberg, Germany

[2] Eberhard Karls University Tuebingen, Cluster of Excellence iFIT (EXC 2180) "Image-Guided and Functionally Instructed Tumor Therapies", Tuebingen, Germany

[3] Radboud University Nijmegen, Radboud Institute for Molecular Life Science, Nijmegen, Netherlands

16:15 INTERSTITIAL TISSUE ORGANIZATION, FLUID TRANSPORT AND CANCER INVASION IN 3D+T

Peter Friedl[1, 2]

[1] University Medical Centre, Dept. Medical BioSciences, Radboud, Nijmegen, Netherlands

[2] UT MD Anderson Cancer Center, Dept. Genitourinary Medicine, Houston Tx, United States of America

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17:15 – 18:45

CHEMISTRY | KICK-OFF | SG 01 (EUROPA SAAL (2ND FLOOR))

Olga Koshkina (Twente, Netherlands); **Andreas Maurer** (Tübingen, Germany); **Kristina Djanashvili** (Delft, Netherlands)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** (registration required!).

PROGRAMME

- Welcome & Introduction
- Student competion - talks/pitches from selected abstracts (see below)
- Planning of the coming year: study group needs and activities
- Best Pitch Award

17:15 WELCOME & INTRODUCTION

Olga Koshkina, **Andreas Maurer**, **Kristina Djanashvili**

17:25 NEW INSIGHTS INTO THE MECHANISM OF IMAGING CATHEPSIN S-POSITIVE TUMORS *IN VIVO*

Berit Blume[1, 2], Bernardo Arús[3, 4], Hannes Rolbieski[3], Oliver Bruns[4, 3], Oliver Plettenburg[1, 2]

[1] Leibniz University Hannover, Hannover, Germany

[2] Helmholtz Munich, Munich, Germany

[3] Helmholtz Pioneer Campus, Munich, Germany

[4] National Center for Tumor Diseases Dresden, Dresden, Germany

17:32 SIMULTANEOUS IN VIVO EVALUATION OF ENDOTHELIN-A AND -B RECEPTORS IN A MURINE BREAST TUMOR MODEL BY FLUORESCENCE IMAGING.

Juliette Delahaye[1], Miriam Stölting[1], Christiane Geyer[1], Anne Helfen[1], Michel Eisenblätter[1, 3], Thomas Vogl[2], Carsten Höltke[1]

[1] University of Münster, Clinic of Radiology, Münster, Germany

[2] University of Münster, Immunology Institute, Münster, Germany

[3] University of Bielefeld, Institute for Diagnostic and Interventional Radiology, Bielefeld, Germany

17:39 DESIGN AND PRECLINICAL EVALUATION OF ^{188}RE-DETA-N-ONARTUZUMAB FOR HEPATOCYTE GROWTH FACTOR RECEPTOR THERANOSTICS

Jonas Genz[1], Simon Klingler[1], Jason Holland[1]

[1] University of Zurich, Chemistry, Zurich, Switzerland

17:46 TOWARDS NOVEL ORGANIC SEMICONDUCTOR-BASED CONTRAST AGENTS FOR TARGETING MATRIX METALLOPROTEINASES AND THE TUMOUR MICROENVIRONMENT

Ana Ivanus[1, 2], Alethea Tabor[1], Graeme Stasiuk[2], Bob Schroeder[1]

[1] University College London, Department of Chemistry, London, United Kingdom

[2] King's College London, Department of Imaging Chemistry & Biology, St Thomas' Hospital, London, United Kingdom

17:53 REVERSIBLE PH-RESPONSIVE MRI CONTRAST WITH PARAMAGNETIC POLYMER MICELLES

Connor Ellis[1], Daohe Yuan[1], Ferenc Mozes[2], Jack Miller[2, 3, 4], Jason Davis[1]

[1] University of Oxford, Chemistry, Oxford, United Kingdom

[2] University of Oxford, Oxford Centre for Clinical Magnetic Resonance Research, Oxford, United Kingdom

[3] Aarhus University, The MR Research Centre, Aarhus, Denmark

[4] University of Oxford, Physics, Oxford, United Kingdom

17:15 – 18:45

STANDARDIZATION | THE VALUE OF STANDARDISATION FOR MULTI-CENTRE TRIALS | SG 02 (MOZART 1 (GROUND FLOOR))

Adriana Tavares (Edinburgh, UK); **Geoffrey Warnock** (Zurich, Switzerland)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** - (registration required!).

17:15 STANDARDIZATION GROUP: PAST, CURRENT, FUTURE ACTIVITIES & NEW LEADERSHIP
Adriana Tavares

17:25 RECOMMENDATIONS AND GUIDELINES FROM THE ISMRM DIFFUSION STUDY GROUP FOR PRECLINICAL DIFFUSION MRI
Noam Shemesh[1]
[1] Champalimaud Foundation, Research, Lisbon, Portugal

17:35 COLLABORATION AND HARMONIZATION: LESSONS FROM LARGE MULTI-CENTER STUDIES WITH RODENT FUNCTIONAL MRI
Joanes Grandjean[1]
[1] Radboud University Medical Center, Medical Imaging, Nijmegen, Netherlands

17:45 DISCUSSION (MRI)
Giovanna Ielacqua, **Markus Aswendt**

18:00 FUNCTIONAL ULTRASOUND IMAGING IN AWAKE MICE: GUIDELINES AND PITFALLS
Emilie Mace[1, 2]
[1] Max Planck Institute of Biological Intelligence, Planegg, Germany
[2] University Medical Center Goettigen, Göttingen, Germany

18:10 DISCUSSION (ULTRASOUND)
Helen Mulvana, **Giovanna Ielacqua**

18:20 COMPOSITE PHANTOMS FOR QUALITY CONTROL AND STANDARDIZATION OF FLUORESCENCE MOLECULAR IMAGING SYSTEMS
Dimitris Gorpas[1, 2]
[1] Helmholtz Munich, Institute of Biological and Medical Imaging, Neuherberg, Germany
[2] Technical University of Munich, Chair of Biological Imaging, Munich, Germany

18:30 DISCUSSION (FLUORESCENCE/OPTICAL)
Sarah Bohndiek

17:15 – 18:45

ONCO-IMMUNOLOGY & THERAPY | SG 03 (MOZART 2 (GROUND FLOOR))

Erik Aarntzen (Nijmegen, Netherlands); **Johannes Schwenck** (Lausanne, Switzerland)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** - (registration required!).

PROGRAMME

- Welcome & introduction of new leadership team
- Summary of study group activities & plans for the coming year
- Oral poster pitches from selected abstracts (see below)
- Best pitch award for ECR.

17:15 WELCOME, SUMMARY OF ACTIVITIES, FUTURE PLANNING & INTRODUCTION OF NEW LEADERSHIP

Erik Aarntzen, **Johannes Schwenck**

17:35 CHARACTERIZATION OF CD163-SPECIFIC NANOBODY-BASED IMMUNOTRACERS FOR NON-INVASIVE IMAGING OF IMMUNOSUPPRESSIVE MACROPHAGES.

Yoline Lauwers[1], Timo De Groof[1], Maral Emami[1], Cécile Vincke[2, 3], Jolien Van Craenenbroeck[2, 3], Geert Raes[2, 3], Jo Van Ginderachter[2, 3], Nick Devoogdt[1]

[1] Vrije Universiteit Brussel, In vivo Cellular and Molecular Imaging Laboratory, Brussels, Belgium

[2] VIB Center for Inflammation Research, Laboratory of Myeloid Cell Immunology, Brussels, Belgium

[3] Vrije Universiteit Brussel, Laboratory of Cellular and Molecular Immunology, Brussels, Belgium

17:42 MRI FOR TISSUE CLASSIFICATION USING OXYGEN ENHANCED, DYNAMIC CONTRAST ENHANCEMENT (DCE) MRI AS PIPELINE FOR DETECTION OF APDL1 RESPONDERS VS NON RESPONDERS

Marta Vuozzo[1, 2], Max Zimmermann[1], Mandred Kneilling[1, 2, 3], Bernd Pichler[1, 2], Andreas Schmid[1, 2]

[1] Eberhard Karls University of Tübingen, Werner Siemens Imaging Center, Tübingen, Germany

[2] Eberhard Karls University of Tübingen, Cluster of Excellence iFIT (EXC2180) "Image-guided and functionally instructed tumour therapies", Tubingen, Germany

[3] Eberhard Karls University of Tübingen, Department of Dermatology, Tubingen, Germany

17:49 A PH-SENSITIZER CAN IMPROVE CANCER IMMUNOTHERAPY TREATMENT AS MONITORED WITH ACIDOCEST MRI

Renee Chin[1, 2], Jorge de la Cerda[1], Fredrick Schuler[1], Sanhita Sinharay[3], **Mark Pagel**[1]

[1] UT MD Anderson Cancer Center, Department of Cancer Systems Imaging, Houston, United States of America

[2] UT MD Anderson Cancer Center, Department of Immunology, Houston, United States of America

[3] Indian Institute of Science, Center for Biosystems Science and Engineering, Bangalore, India

17:56 TUMOR PH IMAGING REVEALS SPATIAL AND TEMPORAL EVOLUTION OF TUMOR ACIDOSIS IN A TRANSGENIC BREAST CANCER MURINE MODEL

Annasofia Anemone[1], Elisa Pirotta[2], Alessia Corrado[2], Deborah Ambrosecchia[1], Daisy Villano[1], Walter Dastrù[1], Antonella Carella[2], Dario Longo[2]

[1] University of Turin, Department of Molecular Biotechnology and Health Sciences, Turin, Italy

[2] National Research Council of Italy (CNR), Institute of Biostructures and Bioimaging (IBB), Turin, Italy

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17:15 – 18:45

CARDIOVASCULAR IMAGING | SG 04 (TRAKL (3RD FLOOR))

Jessica Bastiaansen (Bern, Switzerland); **Daniel Stuckey** (London, UK)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** - Registration required!).

PROGRAMME

- Welcome and introduction of new leadership team
- Oral poster pitches from selected abstracts (see below)
- Keynote Talk by Bram Coolen
- Best pitch award.

17:15 WELCOME AND INTRODUCTION OF NEW LEADERSHIP TEAM

Jessica Bastiaansen, **Daniel Stuckey**

17:25 MOLECULAR MAGNETIC RESONANCE IMAGING OF CARDIAC INFLAMMATION USING MPIO-AVCAM-1.

Swannie Pédron[1], Mikaël Naveau[2], Eloïse Lemarchand[1], Sara Martinez de Lizarrondo[1], Paul Milliez[1, 3], Denis Vivien[1, 3], Maxime Gauberti[1], Thomas Bonnard[1]

[1] Normandie Université, UNICAEN, INSERM, PhIND (Physiopathology and Imaging of Neurological Disorders), Institut Blood and Brain @ Caen-Normandie, Cyceron, Caen, France

[2] Normandie Université, UNICAEN, CNRS UMS 3408, Cyceron, Caen, France

[3] CHU Caen, Clinical Research Department, CHU de Caen Côte de Nacre, Caen, France

17:32 VALIDATION AND OPTIMIZATION OF TISSUE PO_2 DETERMINATION BY NON-INVASIVE ^{19}F MR RELAXOMETRY USING A MURINE HINDLIMB ISCHEMIA MODEL.

Nicolas Stumpe[1, 2], Tuba Gueden-Silber[1], Rebekka Schneckmann[3], Hildo Lamb[2], Ulrich Flögel[1]

[1] Heinrich Heine University, Institute for Molecular Cardiology, Duesseldorf, Germany

[2] Leiden University Medical Center, Radiology, Leiden, Netherlands

[3] Heinrich Heine University, Institute of pharmacology, Duesseldorf, Germany

17:39 QUANTIFYING MYOCARDIAL BLOOD FLOW IN MICE USING 18F-FLURPIRIDAZ

Cristina Barca[1], Maja Strunk[1], Tobias Ross[1], Frank Bengel[1], James Thackeray[1]

[1] Hannover Medical School, Department of Nuclear Medicine, Hannover, Germany

17:46 THE INFLUENCE OF SEX ON THE PROGRESSION OF PULMONARY ARTERIAL HYPERTENSION IN MICE

Maria Jesus Sanchez-Guisado[1, 2, 4], Irati Aiestaran-Zelaia[1, 3, 2], Marta Beraza[1, 2], Jesus Ruiz-Cabello[1, 2, 5]

[1] CIC biomaGUNE, San Sebastian, Spain
[2] CIBER de Enfermedades Respiratorias (CIBERES), Madrid, Spain
[3] Biodonostia Health Research Institute, San Sebastian, Spain
[4] Universidad del País Vasco, Bilbao, Spain
[5] Universidad Complutense de Madrid, Madrid, Spain

17:53 CLINICAL AND PRECLINICAL CARDIOVASCULAR MRI - DON'T GET LOST IN TRANSLATION!

Bram Coolen[1, 2, 3]

[1] Amsterdam UMC, Department of Biomedical Engineering & Physics, Amsterdam, Netherlands
[2] Amsterdam UMC, Department of Radiology & Nuclear Medicine, Amsterdam, Netherlands
[3] Amsterdam UMC, Amsterdam Cardiovascular Sciences, Amsterdam, Netherlands

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17:15 – 18:45

MASS SPECTROMETRY | SG 05 (DOPPLER (4TH FLOOR))

Nicole Strittmatter (Munich, Germany); **Tina B. Angerer** (Uppsala, Sweden); **Alan Race** (Marburg, Germany)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** - (registration required!).

PROGRAMME

- Welcome & Introduction
- Talk by Jörg Hanrieder, Gothenburg
- Oral poster pitches from selected abstracts (see below)
- Talk by Irina Heid, Munich
- Needs, plans for the coming year
- Student pitch award.

17:15 WELCOME & INTRODUCTION

Alan Race, **Nicole Strittmatter**, **Tina Angerer**

17:25 MASS SPECTROMETRY BASED MOLECULAR IMAGING OF IN ALZHEIMER'S DISEASE PATHOLOGY

Jörg Hanrieder[1, 2]

[1] University of Gothenburg, Department of Psychiatry and Neurochemistry, Mölndal, Sweden
[2] University College London, Department of Neurodegenerative Disease, London, United Kingdom

17:55 METAL-BASED MASS TAGS FOR TARGETED MASS SPECTROMETRY IMAGING

Mihyun Park[1], Angela Casini[1], Nicole Strittmatter[1]

[1] Technical University of Munich, Munich, Germany

18:02 MALDI MASS SPECTROMETRY IMAGING WORKFLOW FOR THE ANALYSIS OF N-GLYCOSYLATION PATTERNS IN A PREECLAMPSIA MODEL USING FFPE MURINE PLACENTAL TISSUE

Charlotte Harms[1], Maria Riedner[2], Sandra Blois[1], Hartmut Schlüter[3]

[1] University Medical Center Hamburg-Eppendorf, Department of Obstetrics and Fetal Medicine, Hamburg, Germany

[2] Universität Hamburg, Technology Platform Mass Spectrometry, Hamburg, Germany

[3] University Medical Center Hamburg-Eppendorf, Section Mass spectrometry and Proteomics, Hamburg, Germany

18:09 MOLECULARLY AWARE ROBOTICS FOR SURGERY (MARS) – A NOVEL PLATFORM FOR AUTOMATED MOLECULAR HISTOLOGY-BASED SURGICAL INTERVENTIONS

Daniel Simon[1, 2], Jinshi Zhao[1], Mark Runciman[1], Mohamed Abdelaziz[1], James Higginson[1], Eftichios Manoli[1], James McKenzie[1], Chi Xu[1], Haozheng Xu[1], Maria Paraskevaidi[1], Apostolia Galani[1], Jonathan Dunne[3], Stamatia Giannarou[1], George Mylonas[1], Burak Temelkuran[1, 2], Zoltan Takats[1, 2]

[1] Imperial College London, London, United Kingdom

[2] Rosalind Franklin Institute, Harwell, United Kingdom

[3] Imperial College Healthcare NHS Trust, London, United Kingdom

18:16 DEPICTING TUMOR HETEROGENEITY OF PANCREATIC CANCER – OPPORTUNITIES AND CHALLENGES FOR MASS SPECTROMETRY IMAGING

Irina Heid[1]

[1] Technical University of Munich, School of Medicine, Institute of Diagnostic and Interventional Radiology, Munich, Germany

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18:45 – 20:15

IMAGE-GUIDED DRUG DELIVERY | THE BARRIERS OF DRUG DELIVERY | SG 06 (EUROPA SAAL (2ND FLOOR))

Roel Deckers (Utrecht, Netherlands); **Alexandros Marios Sofias** (Aachen, Germany)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** - (registration required!).

PROGRAMME

- Welcome
- Student Competition - talks/pitches from selected abstracts (see below)
- Talk by Triantafyllos Stylianopoulos, Cyprus
- Study Group Proceedings & Future Activities
- Best pitch award.

18:45 WELCOME AND INTRODUCTION

Roel Deckers, **Alexandros Sofias**

18:55 ENZYME-ACTIVATABLE CHEMOKINE CONJUGATES FOR IN VIVO TARGETING OF TUMOUR-ASSOCIATED MACROPHAGES

Floris van Dalen[1, 3], Nicole Barth[2], Utsa Karmakar[2], Marco Bertolini[2], Lorena Mendive-Tapia[2], Takanori Kitamura[2], Martijn Verdoes[1, 3], Marc Vendrell[2]

[1] RadboudUMC, Tumor Immunology, Nijmegen, Netherlands

[2] Edinburgh University, Centrefor Inflammation Research, Edinburgh, United Kingdom

[3] Institute of Chemical Immunology, Nijmegen, Netherlands

19:02 PROFILING SPECIFIC CELL POPULATIONS WITHIN THE INFLAMMATORY TUMOR MICROENVIRONMENT BY OSCILLATING-GRADIENT DIFFUSION-WEIGHTED MRI

Emily Hoffmann[1], Mirjam Gerwing[1], Stephan Niland[2], Rolf Niehoff[1], Max Masthoff[1], Enrica Wilken[1], Philipp Berger[3], Thomas Vogl[3], Johannes Eble[2], Bastian Maus[1], Anne Helfen[1], Moritz Wildgruber[1, 4], Cornelius Faber[1]

[1] University of Münster, Clinic of Radiology, Münster, Germany

[2] University of Münster, Institute of Physiological Chemistry and Pathobiochemistry, Münster, Germany

[3] University of Münster, Institute of Immunology, Münster, Germany

[4] LMU Munich, Department of Radiology, Munich, Germany

19:09 MOLECULAR ENGINEERING OF A NANOBODY TARGETING MESOTHELIN FOR NEW THERANOSTIC APPROACH IN NUCLEAR ONCOLOGY

Émilien Nguessan[1], Florian Raes[1], Mitra Ahmadi[1], Sandrine Bacot[1], Julien Leenhardt[1, 2], Marlène Debiossat[1], Clémence André[1], Jean-Luc Lenormand[3], Catherine Ghezzi[1], Charlotte Lombardi[1, 3], Alexis Broisat[1]

[1] Univ. Grenoble Alpes, INSERM U1039, LRB, Grenoble, France

[2] Univ. Grenoble Alpes, CHU Grenoble Alpes, Department of Nuclear Medicine, Grenoble, France

[3] Univ. Grenoble Alpes, CNRS U5525, TIMC-Tree, La Tronche, France

19:16 STEM CELL-MEDIATED INTRATUMORAL DELIVERY OF THERANOSTIC GOLD-IRON OXIDE NANOFLOWERS IN PROSTATE CANCER

Behnaz Ghaemi[1], Ana Rosu[1], Chao Wang[1], Gautier Laurent[2], Rana Bazzi[2], Stéphane Roux[2], Ali Shakerizadeh[1], Jeff Bulte[1]

[1] The Johns Hopkins University School of Medicine, The Russell H. Morgan Department of Radiology and Radiological Science, Division of MR Research; and Cellular Imaging Section, Institute for Cell Engineering, BALTIMORE, Maryland, United States of America

[2] Université de Franche-Comté, 2Institut UTINAM, UMR 6213 CNRS-UFC, Besancon, France

19:23 REPROGRAMMING THE TUMOR MICROENVIRONMENT TO OVERCOME BARRIERS TO DRUG DELIVERY

Triantafyllos Stylianopoulos[1]

[1] University of Cyprus, Mechanical Engineering / Cancer Biophysics Lab, Nicosia, Cyprus

18:45 – 20:15

NEUROIMAGING - FOCUS ON NOVEL TECHNOLOGIES | SG 07 (MOZART 1 (GROUND FLOOR))

Philipp Boehm-Sturm (Berlin, Germany); **Selena Milicevic Sephton** (Cambridge, UK)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** - (registration required!).

PROGRAMME

- Welcome and introduction of new leadership team
- Talk by Sjoerd J. Finnema, AbbVie, Chicago
- Talk by Jang-Yeon Park, Suwon, Republic of Korea
- Highlight talk selected from abstract submission: Viola Wroblewski, Hannover *(Poster #509)*
- Future needs and plans.

18:45 WELCOME AND INTRODUCTION OF NEW LEADERSHIP TEAM

Philipp Böhm-Sturm, **Selena Milicevic Sephton**

18:55 IMAGING SYNAPTIC DENSITY IN THE LIVING BRAIN USING SV2A PET

Sjoerd Finnema[1]

[1] AbbVie Inc., Discovery Research, Neuroscience, North Chicago, United States of America

19:25 IN VIVO DIRECT IMAGING OF NEURONAL ACTIVITY AT HIGH TEMPOROSPATIAL RESOLUTION

Toi Phan Tan[1, 2], Hyun Jae Jang[3, 4], Kyeongseon Min[5], Sung-Phil Kim[6], Seung-Kyun Lee[1, 2], Jongho Lee[5], Jeehyun Kwag[3, 7], **Jang-Yeon Park**[1, 2]

[1] Sungkyunkwan University, Department of Biomedical Engineering, Suwon, Republic of Korea

[2] Sungkyunkwan University, Department of Intelligent Precision Healthcare Convergence, Suwon, Republic of Korea

[3] Korea University, Department of Brain and Cognitive Engineering, Seoul, Republic of Korea

[4] Baekseok University, Division of Computer Engineering, Cheonan, Republic of Korea

[5] Seoul National University, Department of Electrical and Computer Engineering, Seoul, Republic of Korea

[6] Ulsan National Institute of Science and Technology, Department of Biomedical Engineering, Ulsan, Republic of Korea

[7] Seoul National University, Department of Brain and Cognitive Sciences, Seoul, Republic of Korea

19:55 EVALUATING THE ROLE OF MICROGLIA IN THE BRAIN-HEART AXIS AFTER CEREBRAL STROKE USING MULTIMODALITY IMAGING

Viola Wroblewski[1], Nele Hermanns[1], Michael Willmann[1], Tobias Ross[1], Frank Bengel[1], James Thackeray[1]

[1] Medizinische Hochschule Hannover, Hannover, Germany

18:45 – 20:15

INTRA-OPERATIVE IMAGING | SG 08 (MOZART 2 (GROUND FLOOR))

Sophie Hernot (Brussels, Belgium); **Pieterjan van der Zaag** (Groningen, Netherlands); **Stephan Rogalla** (Stanford, USA)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** - (registration required!).

18:45 NIR VS SWIR IN CLINICAL, TARGETED FLUORESCENCE IMAGING

Bas Keizers[1, 2], Thomas Nijboer[3], Floris Voskuil[3, 4], Marius van den Heuevel[4], Christa van der Fels[5], Schelto Kruijff[1, 2], Igle de Jong[5], Max Witjes[3], Wesley Browne[6], Pieter van der Zaag[1, 7]

[1] University Medical Centre Groningen, Dept of Nuclear Medicine and Molecular Imaging, Groningen, Netherlands

[2] University Medical Centre Groningen, Dept of Surgery, Groningen, Netherlands

[3] University Medical Centre Groningen, Dept of Oral and Maxillofacial Surgery, Groningen, Netherlands

[4] University Medical Centre Groningen, Dept of Pathology and Medical Biology, Groningen, Netherlands

[5] University Medical Centre Groningen, Dept of Urology, Groningen, Netherlands

[6] University of Groningen, Stratingh Institute for Chemistry, Faculty of Science and Engineering, Groningen, Netherlands

[7] University of Groningen, Zernike Institute, Molecular Biophysics, Groningen, Netherlands

19:10 GUIDELINES TO REPORT ON FLUORESCENCE IMAGING ACQUISITIONS AND DATA

Marcus Stroet

19:35 OF MICE AND MEN (AND WOMEN): TRANSLATING OPTICAL MOLECULAR IMAGING VIA FLUORESCENCE GUIDED SURGERY

Jim Delikatny[1]

[1] Perelman School of Medicine, the University of Pennsylvania, Department of Radiology, Philadelphia, Pennsylvania, United States of America

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18:45 – 20:15

HYPERPOLARIZED MRI | SG 09 (TRAKL (3RD FLOOR))

Adam Gaunt (London, UK); **Christoffer Laustsen** (Aarhus, Denmark)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** - make sure to sign-in during registration!

PROGRAMME & SPEAKERS

- Welcome
- COST Action Plan Presentation
- Best oral poster pitch selected from abstract submission*
- Talk by Kevin Brindle, Cambridge
- Talk by Kayvan Keshari, New York
- Discussion, needs, and future planning.

*Selection of pitch (from accepted poster presentations) will follow soon.

18:45 WELCOME & INTRODUCTION
Adam Gaunt, **James Grist**, **Christoffer Laustsen**

18:50 COST ACTION PLAN PRESENTATION
Christoffer Laustsen

19:00 GLYCOLYTIC METABOLISM IN HYPERTROPHIC MUSCLE ASSESSED BY HYPERPOLARIZED [1-^{13}C]PYRUVATE MR AND [^{18}F]FDG-PET IMAGING
Frits van Heijster[1], Nadine Setzer[1], Wolfgang Gottwald[1], Richard Jaspers[2], Franz Schilling[1]
[1] Technical University Munich, Nuclear Medicine, Klinikum rechts der Isar, Munich, Germany
[2] Vrije Universiteit Amsterdam, Laboratory for Myology, Faculty of Behavioral and Movement Sciences, Amsterdam Movement Sciences, Amsterdam, Netherlands

19:01 HYPERPOLARIZED ^{13}C MRI – WHAT IS IT GOOD FOR IN ONCOLOGY?
Kevin Brindle[1]
[1] Cambridge, CRUK Cambridge Institute, Cambridge, United Kingdom

19:16 CAN WE MAKE METABOLIC IMAGING GREAT AGAIN?
Kayvan Keshari[1]
[1] Memorial Sloan Kettering Cancer Center, New York, United States of America

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18:45 – 20:15

LUNG & X-RAY IMAGING | SG 10 (DOPPLER (4TH FLOOR))

Greetje Vande Velde (Leuven, Belgium); **Monica Abella** (Madrid, Spain)

Study Group sessions are organized by the group leadership in accordance with the needs of the community. Group sessions are open to all EMIM attendees and followed by a **thematic bar hopping** - (registration required!).

PROGRAMME

- Welcome and introduction of new leadership team
- Oral poster pitches pitches from selected abstracts (see below)
- Talk by Jung-Joon (John) Min, Chonnam University, Republic of Korea
- Best pitch award.

18:45 WELCOME AND INTRODUCTION OF NEW LEADERSHIP TEAM
Monica Abella, **Greetje Vande Velde**

18:55 4D IN VIVO MICROCT ANALYSIS OF LUNG (AND OCULAR) MELANOMA DEVELOPMENT

Bartosz Leszczynski[1, 5], Grzegorz Kwiatkowski[3], Birger Tielemans[4], Malgorzata Szczygiel[2], Martyna Elas[2], Flore Belmans[4], Greetje Vande Velde[4]

[1] Jagiellonian University, Medical Physics Department, M. Smoluchowski Institute of Physics, Krakow, Poland

[2] Jagiellonian University, Faculty of Biochemistry, Biophysics and Biotechnology, Krakow, Poland

[3] Jagiellonian University, Jagiellonian Centre for Experimental Therapeutics (JCET), Krakow, Poland

[4] KU Leuven, Department of Imaging and Pathology, Leuven, Belgium

[5] Jagiellonian University, Center for Theranostics, Krakow, Poland

19:02 A FULLY AUTOMATED DEEP LEARNING ALGORITHM TO DERIVE MICRO-CT IMAGING BIOMARKERS DESCRIBING LUNG FIBROSIS PROGRESSION AND RESPONSE TO THERAPY IN MICE

Erica Ferrini[1], Martina Buccardi[2], Elena Vincenzi[3], Andrea Grandi[4], Roberta Ciccimarra[1], Francesca Pennati[5], Gino Villetti[4], Franco Stellari[4]

[1] University of Parma, Department of Veterinary Science, Parma, Italy

[2] University of Parma, Department of Mathematical, Physical and Computer Sciences, Parma, Italy

[3] University of Genoa, Department of Computer Science, Bioengineering, Robotics and Systems Engineering, Genova, Italy

[4] Chiesi Farmaceutici, S.p.A., Corporate Pre-Clinical Research and Development, Parma, Italy

[5] Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Milano, Italy

19:09 VIRTUAL HISTOLOGY BY MEANS OF X-RAY PHASE-CONTRAST COMPUTED MICROTOMOGRAPHY (µCT) FOR THE STUDY OF FOLLICULAR THYROID CARCINOMA (FTC) IN PARAFFIN-EMBEDDED THYROID TISSUE BLOCKS

Sandro Donato[1, 2], Raffaele Agostino[1, 3], Lucia Arana Pena[4, 5], Fulvia Arfelli[4, 5], Luca Brombal[4, 5], Renata Longo[4, 5], Fulvia Martellani[6], Giulia Saccomano[7, 8], Giuliana Tromba[8], Deborah Bonazza[6]

[1] University of Calabria, Department of Physics and STAR-LAB, Rende, Italy

[2] INFN, Division of Frascati, Frascati, Italy

[3] CNR, Istituto di Nanotecnologia (Nanotec) - UoS Cosenza, Rende, Italy

[4] University of Trieste, Department of Physics, Trieste, Italy

[5] INFN, Division of Trieste, Trieste, Italy

[6] Azienda Sanitaria Universitaria Giuliana Isontina (ASUGI), Surgical Pathology Unit, Trieste, Italy

[7] University of Trieste, Department of Engineering and Architecture, Trieste, Italy

[8] Elettra Sincrotrone S.C.p.A., Trieste, Italy

19:16 IN VIVO MONITORING OF HYDROGEL-EMBEDDED STEM CELLS: COMBINATION OF SYNCHROTRON X-RAY PHASE-CONTRAST AND MULTI-SPECTRAL IMAGING APPLIED TO OSTEOARTHRITIS MICE MODELS.

Clément Tavakoli[1, 2], Moustoifa Said[3, 4], Karine Toupet[5], Johoon Kim[6], Bertrand Favier[7], David Cormode[6], Claire Rome[4], Danièle Noël[5], Rachel Auzély[3], Hélène Elleaume[2], Marlène Wiart[1], Emmanuel Brun[2]

[1] University Claude Bernard Lyon 1, INSERM, U1060, CarMeN, Lyon, France

[2] University Grenoble Alpes, INSERM, UA7, STROBE, Grenoble, France

[3] University Grenoble Alpes, CNRS, UPR 5301, CERMAV, Grenoble, France

[4] University Grenoble Alpes, INSERM, U1216, Grenoble Institut Neurosciences, Grenoble, France

[5] University of Montpellier, INSERM, U844, IRMB, Montpellier, France

[6] University of Pennsylvania, Radiology Department, Philadelphia, United States of America

[7] University Grenoble Alpes, UMR 5525, TIMC, Grenoble, France

19:23 VIRTUAL HISTOLOGY OF HUMAN CEREBRAL AMYLOID ANGIOPATHY

Matthieu Chourrout[1], David Meyronet[2], Emmanuel Brun[3], Fabien Chauveau[1]

[1] University Claude Bernard Lyon 1, Lyon Neuroscience Research Center (CRNL), Lyon, France

[2] Hospices Civils de Lyon, Lyon, France

[3] Synchrotron radiation for Biomedicine (STROBE), Saint Martin d'Hères, France

19:30 IN VIVO IMAGING OF BACTERIA FOR INFECTION DIAGNOSIS AND CANCER THERANOSTICS

Jung-Joon Min[1]

[1] Chonnam National University Medical School, Nuclear Medicine, Hwasun, Republic of Korea

WEDNESDAY, 15 MARCH, 2023

09:00	OPENING SESSION | PL 00 (Europa Saal (entrance 2nd floor))
09:30	ANNEMIE van der LINDEN, Antwerp | Singing in the Brain: an in-vivo MRI Perspectiv on Songbirds | PL 01 (Europa Saal (entrance 2nd floor))
10:45	Translational/Clinical Studies in Oncology | PS 01 (EUROPA SAAL (2nd floor))
10:45	Optoacoustic & Ultrasound Technologies | PS 02 (MOZART 1 (ground floor))
10:45	Processing, Reconstruction, Segmentation & Quantification | PS 03 (MOZART 2 (ground floor))
10:45	Imaging of Infection | PS 04 (TRAKL 3rd floor (mirrored in PARACELSUS 2nd floor))
10:45	Imaging of De-/Regeneration | Biology | PS 05 (DOPPLER (4th floor))
12:15	MILabs Lunch Symposium | LS 01 (MOZART 2 (ground floor))
13:30	ELIZABETH M.C. HILLMAN, New York | The Need for Speed: The Power of Measuring in-vivo Dynamics with High-Speed Image | PL 02 (Europa Saal (entrance 2nd floor))
14:30	Image-Guided Drug Delivery | PS 06 (EUROPA SAAL (2nd floor))
14:30	PET/SPECT, Radionuclide, X-Ray, CT | Probe Chemistry | PS 07 (MOZART 1 (ground floor))
14:30	Probes | Late-Breaking Session | PS 08 (MOZART 2 (ground floor))
14:30	Tissue Omics & Optical Technologies | PS 09 (TRAKL 3rd floor (mirrored in PARACELSUS 2nd floor))
14:30	Cardiac & Vascular Diseases | Remodeling & Cell Biology | PS 10 (DOPPLER (4th floor))
16:30	ESMI Award for Excellent Thesis: MAX SENDERS | Precision Imaging and Nanoimmunotherapy for Inflammatory Artherosclerosis | PL 03 (Europa Saal (entrance 2nd floor))
17:15	Design & Application of (Radio)Theranostics | PS 11 (EUROPA SAAL (2nd floor))
17:15	Optoacoustic, Ultrasound, Multimodal | Probe Chemistry | PS 12 (MOZART 1 (ground floor))
17:15	Oncology | Late-Breaking Session | PS 13 (MOZART 2 (ground floor))
17:15	Brain Function & Cognition | PS 14 (TRAKL 3rd floor (mirrored in PARACELSUS 2nd floor))
17:15	X-Ray Technology | PS 15 (DOPPLER (4th floor))

09:00 – 09:30

OPENING SESSION | PL 00 (EUROPA SAAL (ENTRANCE 2ND FLOOR))

Michal Neeman (Rehovot, Israel); **Hervé Boutin** (Tours, France)

On behalf of the ESMI President Michal Neeman, the entire Board and Committees, it is with immense pleasure to welcome you to Salzburg for the 18th annual meeting of the society: **the EMIM 2023**!

OPENING SESSION:

- Welcome Address by the President Michal, Neeman
- Awarding
  - Honorary Membership - Bernd Pichler, Tübingen
  - PhD Award for excellent PhD thesis 2022 - Max Senders, Amsterdam
  - ESMI Award 2023 - Peter van Zijl, Baltimore

Music: Trombone Connection Salzburg
Musicians: Stefan Konzett, Dusan Kranjc, Simon Seidel, Thomas Baur (Camerata Orchestra and Mozarteum Salzburg)

09:30 – 10:15

ANNEMIE VAN DER LINDEN, ANTWERP | SINGING IN THE BRAIN: AN IN-VIVO MRI PERSPECTIV ON SONGBIRDS | PL 01 (EUROPA SAAL (ENTRANCE 2ND FLOOR))

Michal Neeman (Rehovot, Israel); **Hervé Boutin** (Tours, France)

ANNEMIE van der LINDEN | Professor Emerita and Founder of the Bio-Imaging Lab at the Department of Biomedical Sciences in the University of Antwerp

Annemie Van der Linden received her PhD in Biology in 1989. She became emerita since January 2022 and before that she was the Head of the Bio-Imaging Lab. The core interest of her lab was **high resolution MRI of the brain** focusing on **neurodegeneration**, **neuroplasticity** and **ageing** using small rodents and songbirds as model systems. Annemie and her colleagues developed an **MRI toolbox** to study neurodegeneration, -modulation and -plasticity that has led to many international collaborations and publications. Her team pioneered **(f)MRI in tiny songbirds** as a remarkable model for **vocal learning and neuroplasticity**. She published 300 peer-reviewed publications of which 45 on the use of MRI in songbirds.

09:30 SINGING IN THE BRAIN: AN IN-VIVO MRI PERSPECTIVE ON SONGBIRDS

Annemie Van der Linden[1, 2]

[1] UAntwerpen, Bio-Imaging lab, Dept Biomedical Sciences, UAntwerp, Wilrijk, Belgium

[2] UAntwerpen, µNEURO Research Centre of Excellence, UAntwerp, Wilrijk, Belgium

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10:45 – 12:15

TRANSLATIONAL/CLINICAL STUDIES IN ONCOLOGY | PS 01 (EUROPA SAAL (2ND FLOOR))

Thomas Helbich (Vienna, Austria); **Magdalena Staniszewska** (Essen, Germany)

10:45 INTRODUCTORY LECTURE

Willemien Menke - van der Houven van Oordt

11:05 [89ZR]ZR-DFO-AVELUMAB PET/CT IN EARLY STAGE NON-SMALL CELL LUNG CARCINOMA PATIENTS TO PREDICT NEO-ADJUVANT AVELUMAB TREATMENT RESPONSE

Sarah Verhoeff[1, 2], Erik Aarntzen[2], Evelien van Genugten[2], Shoko Vos[3], Lieke van der Woude[3], Francesco Ciompi[3], Carla van Herpen[1], Ad Verhagen[4], Guus van den Heuvel[5], Berber Piet[5], Sandra Heskamp[2], Michel van den Heuvel[5]

[1] Radboudumc, Medical Oncology, Nijmegen, Netherlands

[2] Radboudumc, Nuclear Medicine, Nijmegen, Netherlands

[3] Radboudumc, Pathology, Nijmegen, Netherlands

[4] Radboudumc, Cardio thoracic surgery, Nijmegen, Netherlands

[5] Radboudumc, Lung diseases, Nijmegen, Netherlands

11:17 A FIRST ASSESSMENT OF CD8-PET/CT WITH 89-ZR-CREFMIRLIMAB AS PREDICTIVE BIOMARKER FOR RESPONSE TO STANDARD OF CARE IMMUNOTHERAPY IN PATIENTS WITH SOLID TUMORS.

Guillaume Potdevin[1], Isabelle Ayx[1], Emilie Mahieu[1], Hadassah Sade[1], Laura Dillon[2], Guenter Schmidt[1]

[1] Astrazeneca, Computational Pathology / Translation Medicine, München, Germany

[2] Parthenon Therapeutics, Boston, United States of America

11:29 A COMPARISON OF [^{68}GA]GA-NOTA-ANTI-HER2-SDAB PET/CT WITH [^{18}F]FDG-PET/CT IN BREAST CARCINOMA PATIENTS.

Odrade Gondry[1, 2], Catarina Xavier[1], Johannes Heemskerk[2], Laurens Raes[2], Jens Debacker[1, 2], Frank Degeeter[1], Christel Fontaine[3], Marian Vanhoeij[4], Sandrine Aspeslagh[3], Sofie Joris[3], Jacques De Grève[3], Guy Verfaillie[4], Ine Luyten[4], Lynn De Mey[1, 2], Frederik Vandenbroucke[5], Wim Waelput[6], Katrien Glorieus[4], Sophie Bourgeois[2], Julie Cousaert[2], Ilse Vaneycken[2], Nick Devoogdt[1, 2], Hendrik Everaert[1, 2], Vicky Caveliers[1, 2], Tony Lahoutte[1, 2], Marleen Keyaerts[1, 2]

[1] Vrije Universiteit Brussel, Department of Medical Imaging (MIMA), Brussels, Belgium

[2] Universitair Ziekenhuis Brussel, Department of Nuclear Medicine, Brussels, Belgium

[3] Universitair Ziekenhuis Brussel, Department of Medical Oncology, Brussels, Belgium

[4] Universitair Ziekenhuis Brussel, Department of Oncological Surgery, Brussels, Belgium

[5] Universitair Ziekenhuis Brussel, Department of Radiology, Brussels, Belgium

[6] Universitair Ziekenhuis Brussel, Pathology Department, Brussels, Belgium

11:41 CLINICAL PET/CT AND PET/MR IMAGING OF PANCREATIC CANCER USING THE AVB6-INTEGRIN TARGETED PET PROBE GA-68-TRIVEHEXIN

Jana Rehm[1], Jörg Kotzerke[1], Robert Winzer[1], Marc Pretze[1], Sebastian Hempel[2], Marius Distler[2], Gunnar Folprecht[3], Katja Steiger[4], Johannes Notni[4, 5]

[1] University Hospital Carl Gustav Carus, Clinic for Nuclear Medicine, Dresden, Germany

[2] University Hospital Carl Gustav Carus, Clinic and Polyclinic for Visceral Surgery, Dresden, Germany

[3] University Hospital Carl Gustav Carus, Medical Department I, University Cancer Center, Dresden, Germany

[4] Technical University of Munich, Institute of Pathology, Munich, Germany

[5] TRIMT GmbH, Radeberg, Germany

11:53 A KINEMATIC ASSESSMENT OF PSMA-TARGETED PROSTATE CANCER SURGERY – USING ARTIFICIAL INTELLIGENCE TO EVALUATE DROP-IN GAMMA PROBE USAGE DURING ROBOTIC SURGERY

Samaneh Azargoshasb[1, 2], Tessa Buckle[1, 2], Hilda A. de Barros[2], Daphne D.D. Rietbergen[1, 3], Paolo Dell'Oglio[1, 4], Pim J van Leeuwen[2], Christian Wagner[5], Alberto Briganti[6], Tobias Maurer[7], Henk G. van der Poel[2, 8], Matthias N. van Oosterom[1, 2], Fijs W. B. van Leeuwen[1, 2]

[1] Interventional Molecular Imaging-Laboratory, department of Radiology, Leiden University Medical Center, Leiden, Netherlands

[2] Department of Urology, Netherlands Cancer Institute-Antoni van Leeuwenhoek Hospital, Amsterdam, Netherlands

[3] Section of Nuclear Medicine, Department of Radiology, Leiden University Medical Center, Leiden, Netherlands

[4] Department of Urology, ASST Grande Ospedale Metropolitano Niguarda, Milan, Italy

[5] St. Antonius - Hospital Gronau, Head of Robotic Urology, Gronau, Germany

[6] Department of Urology, University Vita-Salute, San Raffaele Scientific Institute, Milan, Italy

[7] Martini-Klinik Prostate Cancer Center, University Hospital Hamburg-Eppendorf, Hamburg, Germany

[8] Department of Urology, Amsterdam University Medical Centers, Amsterdam, Netherlands

10:45 – 12:15

OPTOACOUSTIC & ULTRASOUND TECHNOLOGIES | PS 02 (MOZART 1 (GROUND FLOOR))

Chrit Moonen (Utrecht, Netherlands); **Weiye Li** (Zurich, Switzerland)

10:45 INTRODUCTORY LECTURE

Juan Aguirre

11:05 GUIDED RASTER-SCANNING OPTOACOUSTIC MESOSCOPY FOR IN VIVO ASSESSMENT OF TRANSMURAL INFLAMMATION IN MURINE COLITIS

Adrian Buehler[1, 2, 3], Emma Brown[5, 4], Lars-Philip Paulus[1, 2], Roman Raming[1, 2], Markus Eckstein[6], Oana-Maria Thoma[7], André Hörning[1], Arndt Hartmann[6], Markus Neurath[7, 8], Ulrich Rother[9], Joachim Woelfle[1], Oliver Friedrich[3], Maximilian Waldner[7, 8], Ferdinand Knieling[1, 2], Sarah Bohndiek[4, 5], **Adrian Regensburger**[1, 2]

[1] Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg, University Hospital Erlangen, Department of Pediatrics and Adolescent Medicine, Erlangen, Germany

[2] Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg, University Hospital Erlangen, Pediatric Experimental and Translational Imaging Laboratory (PETI-Lab), Erlangen, Germany

[3] Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg, Institute of Medical Biotechnology, Erlangen, Germany

[4] University of Cambridge, Department of Physics, Cambridge, United Kingdom

[5] University of Cambridge, Cancer Research UK Cambridge Institute, Cambridge, United Kingdom

[6] Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg, University Hospital Erlangen, Institute of Pathology, Erlangen, Germany

[7] Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg, University Hospital Erlangen, Department of Medicine 1, Erlangen, Germany

[8] Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg, University Hospital Erlangen, German Center Immunotherapy (DZI), Erlangen, Germany

[9] Friedrich-Alexander-Universität (FAU) Erlangen-Nürnberg, University Hospital Erlangen, Department of Vascular Surgery, Erlangen, Germany

11:17 TOWARD WHOLE-BRAIN MINIMALLY INVASIVE VASCULAR IMAGING

Anatole Jimenez[1], Bruno Osmanski[2], Denis Vivien[3], Mickael Tanter[1], Thomas Gaberel[3, 4], Thomas Deffieux[1]

[1] Physics For Medicine Paris, Paris, France

[2] Iconeus, Paris, France

[3] Physiopathology and Imaging of Neurological Disorders, Caen, France

[4] Caen University Hospital, Department of Neurosurgery, Caen, France

11:29 NON-INVASIVE ASSESSMENT OF HUMAN MELANOMA MICROVASCULATURE IN VIVO BY SINGLE-BREATH-HOLD OPTOACOUSTIC MESOSCOPY

Hailong He[1, 2], Christine Schoenmann[2], Ulf Darsow[2], Juan Aguirre[1], Vasilis Ntziachristos[1, 2]

[1] Helmholtz Munich, Institute of Biological and Medical Imaging, Munich, Germany

[2] Technical University of Munich, 2 Chair of Biological Imaging, Munich, Germany

11:41 SPIRAL VOLUMETRIC OPTOACOUSTIC TOMOGRAPHY FOR HEAD-TO-TAIL PANORAMIC IMAGING OF MICE

Sandeep Kumar Kalva[1, 2], Xosé Luís Deán-Ben[1, 2], Michael Reiss[1, 2], Daniel Razansky[1, 2]

[1] University of Zurich, Institute of Pharmacology and Toxicology and Institute for Biomedical Engineering, Zurich, Switzerland

[2] ETH Zurich, Institute for Biomedical Engineering, Department of Information Technology and Electrical Engineering, Zurich, Switzerland

11:53 THE FIRST DEMONSTRATION OF THE POTENTIAL OF PHASE-CHANGE ULTRASOUND CONTRAST AGENTS FOR *IN VIVO* PROTON RANGE VERIFICATION

Bram Carlier[1, 2, 3], Gonzalo Collado-Lara[4], Sophie Heymans[5, 6], Yosra Toumia[7], Luigi Musetta[2, 3], Marcus Ingram[6], Gaio Paradossi[7], Hendrik Vos[4], Koen Van Den Abeele[5], Jan D'hooge[6], Edmond Sterpin[1, 3], Uwe Himmelreich[2, 3]

[1] KU Leuven, Department of Oncology, Leuven, Belgium

[2] KU Leuven, Department of Imaging & Pathology, Leuven, Belgium

[3] KU Leuven, Molecular Small Animal Imaging Center, Leuven, Belgium

[4] Erasmus MC University Medical Center, Department of Cardiology, Rotterdam, Netherlands

[5] KU Leuven, Department of Physics, Kortrijk, Belgium

[6] KU Leuven, Department of Cardiovascular Sciences, Leuven, Belgium

[7] University of Rome Tor Vergata, Department of Chemical Science and Technologies, Rome, Italy

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10:45 – 12:15

PROCESSING, RECONSTRUCTION, SEGMENTATION & QUANTIFICATION | PS 03 (MOZART 2 (GROUND FLOOR))

Ronald Boellaard (Amsterdam, Netherlands); **Jesús Silva** (Santiago de Compostela, Spain)

10:45 INTRODUCTORY LECTURE

Marc Huisman

11:05 CHARACTERIZATION OF POSITRONIUM IMAGING FOR THE J-PET DETECTOR BASED ON A NEW RECONSTRUCTION ALGORITHM

Kamil Dulski[1, 2], On behalf of the J-PET collaboration[1]

[1] Jagiellonian University, Department of Experimental Particle Physics and Applications, Krakow, Poland

[2] Laboratori Nazionali di Frascati, Frascati, Italy

11:17 STUDY OF DISPERSION-CORRECTED ARTERIAL INPUT FUNCTIONS MEASURED WITHIN AN EXTRACORPOREAL SHUNT DRIVEN BY BLOOD PRESSURE IN PET-MRI OF MICE

Juela Cufe[1], Florian Gierse[2], Klaus Schäfers[2], Sven Hermann[2], Michael Schäfers[1, 2], Florian Büther[1], Philipp Backhaus[1]

[1] University Hospital Münster, Department of Nuclear Medicine, Münster, Germany

[2] University of Münster, European Institute for Molecular Imaging, Münster, Germany

11:29 ENHANCE-PET: A SOFTWARE FRAMEWORK TO EXPLORE THE HUMAN FUNCTIONAL CONNECTOME IN TOTAL-BODY [^{18}F]FDG-PET

Daria Ferrara[1], Ramsey Badawi[2, 3], Simon Cherry[2, 3], Benjamin Spencer[3], Marcus Hacker[4], Thomas Beyer[1], Lalith Shiyam Sundar[1]

[1] Quantitative Imaging and Medical Physics (QIMP) Team, Medical University of Vienna, Vienna, Austria

[2] University of California Davis, Department of Radiology, Sacramento, United States of America

[3] University of California Davis, Department of Biomedical Engineering, Sacramento, United States of America

[4] Medical University of Vienna, Department of Biomedical Imaging and Image-Guided Therapy, Division of Nuclear Medicine, Vienna, Austria

11:41 THE SIM-PET PROJECT: STANDARDIZATION OF PRECLINICAL PET QUANTIFICATION METHODS USING MONTE CARLO SIMULATION

Pablo Aguiar[1, 2], Lara García-Varela[1, 2], Noemi Gómez-Lado[1, 2], Jesús Silva-Rodríguez[3]

[1] University of Santiago de Compostela, Molecular Imaging and Pharmacokinetic Modelling Group, Santiago de Compostela, Spain

[2] Health Research Institute of Santiago de Compostela (IDIS), Molecular Imaging Group and Nuclear Medicine Department, Santiago de Compostela, Spain

[3] Institute of Biomedicine of Seville (IBIS), Movement Disorders Group, Sevilla, Spain

11:53 A USER INDEPENDENT DENOISING METHOD FOR X-NUCLEI MRI AND MRS

Nichlas Christensen[1], Michael Vaeggemose[1, 4], Nikolaj Bogh[1], Esben Hansen[1], Jonas Olesen[2], Yaewon Kim[3], Daniel Vigneron[3], Jeremy Gordon[3], Sune Jespersen[2], Christoffer Laustsen[1]

[1] Aarhus University, Department of Clinical Medicine, MR Research Centre, Aarhus, Denmark

[2] Aarhus University, Department of Clinical Medicine, Center of Functionally Integrative Neuroscience (CFIN) and MINDLab, Aarhus, Denmark

[3] University of California, San Francisco, Department of Radiology and Biomedical Imaging, San Francisco, United States of America

[4] GE Healthcare, Brondby, Denmark

10:45 – 12:15

IMAGING OF INFECTION | PS 04 (TRAKL 3RD FLOOR (MIRRORED IN PARACELSUS 2ND FLOOR))

Greetje Vande Velde (Leuven, Belgium); **Dima Hammoud** (Bethesda, USA)

10:45 INTRODUCTORY LECTURE

Nicolas Beziere

11:05 COMPUTED TOMOGRAPHY AND [18F]-FDG PET IMAGING FOLLOW UP DURING SARS-COV-2 INFECTION PROVIDE ADDITIONAL INSIGHTS FOR COVID-19 PATHOGENESIS AND THE EVALUATION OF TREATMENT AND VACCINES IN NON-HUMAN PRIMATES

Thibaut Naninck[1], Nidhal Kahlaoui[1], Antoine De Mori[1], Romain Marlin[1], Cécile Hérate[1], Pauline Maisonnasse[1], Catherine Chapon[1], Roger Le Grand[1]

[1] Université Paris-Saclay, Inserm, CEA, Center for Immunology of Viral, Auto-immune, Hematological and Bacterial diseases (IMVA-HB/IDMIT), Fontenay aux roses, France

11:17 BIOLUMINESCENCE IMAGING AS A NON-INVASIVE READOUT OF FUNGAL BURDEN IN *GALLERIA MELLONELLA* LARVAE TO ASSESS ANTIFUNGAL EFFICACY

Lauren Michiels[1], Eliane Vanhoffelen[1], Katrien Lagrou[2], Agustin Résendiz-Sharpe[1], Greetje Vande Velde[1]

[1] KU Leuven, Department of Imaging and Pathology, Biomedical MRI/MoSAIC, Leuven, Belgium

[2] KU Leuven, Department of Microbiology, Immunology and Transplantation, Laboratory of Clinical Microbiology, Leuven, Belgium

11:29 MULTI-TRACER PET/CT IMAGING APPROACH FOR THE CHARACTERIZATION OF VIRAL/HOST/DRUG INTERACTIONS IN A SIV MACAQUE MODEL

Andréa Mialet[1], Fabien Caillé[2], Thibaut Naninck[1], Eléana Navarre[1], Camille Ludot[1], Sophie Luccantoni[1], Céline Mayet[1], Quentin Pascal[1], Bertrand Kuhnast[2], Nicolas Tournier[2], Chris M Parry[3], Richard Dunham[4], Delphine Desjardins[1], Roger Le Grand[1], **Catherine Chapon**[1]

[1] Université Paris-Saclay, Inserm, CEA, Center for Immunology of Viral, Auto-Immune, Hematological and Viral Diseases (IMVA-HB/IDMIT), Fontenay-aux-Roses, France

[2] Université Paris-Saclay, Inserm, CNRS, CEA, Laboratoire d'Imagerie Biomédicale Multimodale Paris-Saclay (BioMaps), Orsay, France

[3] ViiV Healthcare, London, United Kingdom

[4] ViiV Healthcare, Durham, North Carolina, United States of America

11:41 IMAGE-GUIDED ASSESSMENT THE EFFICACY OF CLEANING APPROACHES OF BACTERIAL INFECTION ON ORTHOPEDIC PROSTHESES

Tessa Buckle[1], Mick Welling[1], Matthias van Oosterom[1], Daphne Rietbergen[1], Bart Pijls[2], Fijs van Leeuwen[1]

[1] Leiden University Medical Center, Radiology/Interventional Molecular Imaging Laboratory, Leiden, Netherlands

[2] Leiden University Medical Center, Orthopedics, Leiden, Netherlands

11:53 DEVELOPMENT OF A SPECT RADIOTRACER FOR THE SPECIFIC DETECTION OF GRAM-POSITIVE BACTERIA IN AN INFECTIVE ENDOCARDITIS ANIMAL MODEL

Mario González-Arjona[1, 2], Gorka Sobrino[1], María Guembe[3], Lorena Cussó[1, 2, 4], Daniel Calle[2], Emilio Bouza[3, 5, 6], Patricia Muñoz[3, 5, 6], Manuel Desco[1, 2, 4], Beatriz Salinas[1, 2, 7]

[1] Instituto de Investigación Sanitaria Gregorio Marañón, Unidad de Medicina y Cirugía Experimental, Madrid, Spain

[2] Centro Nacional de Investigaciones Cardiovasculares, Unidad de Imagen Avanzada, Madrid, Spain

[3] Instituto de Investigación Sanitaria Gregorio Marañón, Servicio de Microbiología y Enfermedades Infecciosas, Madrid, Spain

[4] Centro de Investigación Biomédica en Red de Salud Mental (CIBERSAM), Madrid, Spain

[5] Universidad Complutense de Madrid, Departamento de Medicina, Facultad de Medicina, Madrid, Spain

[6] Centro de Investigación Biomédica en Red de Enfermedades Respiratorias (CIBERES), Madrid, Spain

[7] Universidad Carlos III de Madrid, Departamento de Bioingeniería e Ingeniería Aeroespacial, Madrid, Spain

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10:45 – 12:15

IMAGING OF DE-/REGENERATION | BIOLOGY | PS 05 (DOPPLER (4TH FLOOR))

Pieter Vandenberghe (Leuven, Belgium); **John J. Kelly** (London, Canada)

10:45 INTRODUCTORY LECTURE

Claire Rome

11:05 LONG-TERM NON-INVASIVE ASSESSMENT OF VEGF-INDUCED MICROVASCULAR CHANGES IN SKIN WOUNDS BY LARGE-SCALE OPTOACOUSTIC MICROSCOPY (LSOM)

Yu-Hang Liu[1, 2], Lorenz Brunner[3], Johannes Rebling[1, 2], Maya Ben-Yehuda Greenwald[4], Weiye Li[1, 2], Sabine Werner[4], Michael Detmar[3], Daniel Razansky[1, 2]

[1] University of Zurich, Institute of Pharmacology and Toxicology, Zurich, Switzerland

[2] ETH Zurich, Institute for Biomedical Engineering, Department of Information Technology and Electrical Engineering, Zurich, Switzerland

[3] ETH Zurich, Institute of Pharmaceutical Sciences, Zurich, Switzerland

[4] ETH Zurich, Institute of Molecular Health Sciences, Department of Biology, Zurich, Switzerland

11:17 HIGH LEVELS OF MIRNA17 IN EARLY PREGNANCY IS ASSOCIATED WITH ABNORMAL PLACENTAL ANGIOGENESIS AND PREECLAMPSIA

Bitya Raphael-Mizrahi[1], Inbal Biton[2], Talia Harris[3], Kayla Bayless[4], Mahua Choudhury[5], Michal Neeman[1]

[1] Weizmann Institute of Science, Department of Immunology and Regenerative Biology, Rehovot, Israel

[2] Weizmann institute of science, Department of Veterinary Resources, Rehovot, Israel

[3] Weizmann Institute of Science, Department of chemical research support, Rehovot, Israel

[4] Texas A&M University, College of Medicine, College Station, United States of America

[5] Texas A&M University, College of Pharmacy, College Station, United States of America

11:29 SYSTEMIC MODULATION OF MUTANT HUNTINGTIN EXPRESSION DELAYS DISEASE PROGRESSION IN THE REGULATABLE KNOCK-IN LACQ140I(*) MOUSE MODEL OF HUNTINGTON'S DISEASE

Daniele Bertoglio[1, 2, 3], Franziska Zajicek[1], Liesbeth Everix[1], Stef De Lombaerde[1], Joëlle van Rijswijk[2], Alan Miranda[1], Marleen Verhoye[2, 3], Celia Dominguez[4], Ignacio Munoz-Sanjuan[4], Jeroen Verhaeghe[1, 3], Longbin Liu[4], Deanna Marchionini[4], Jonathan Bard[4], Steven Staelens[1, 3]

[1] University of Antwerp, Molecular Imaging Center Antwerp (MICA), Antwerp, Belgium

[2] University of Antwerp, Bio-Imaging Lab, Antwerp, Belgium

[3] University of Antwerp, µNeuro Research Centre of Excellence, Antwerp, Belgium

[4] CHDI Management/CHDI Foundation, Los Angeles, United States of America

11:41 TENSOR BASED MORPHOMETRY AS A PROMISING MRI MARKER TO ASSESS THE ANATOMICAL IMPACT OF MUTANT HUNTINGTIN LOWERING IN THE LACQ140 MOUSE MODEL OF HUNTINGTON'S DISEASE

Nicholas Vidas-Guscic[1, 2], Joëlle van Rijswijk[1, 2], Tamara Vasilkovska[1, 2], Johan Van Audekerke[1, 2], Dorian Pustina[3], Haiying Tang[3], Roger Cachope[3], Ignacio Munoz-Sanjuan[3], Deanna Marchionini[3], Mohit Adhikari[1, 2], Annemie Van der Linden[1, 2], Daniele Bertoglio[1, 2], Marleen Verhoye[1, 2]

[1] University of Antwerp, Bio-Imaging Lab, Antwerp, Belgium

[2] University of Antwerp, µNeuro Research Centre of Excellence, Antwerp, Belgium

[3] CHDI Management/CHDI Foundation, Princeton, NJ, United States of America

11:53 INTRAVITAL ASSESSMENT OF CELL RESPONSES TO CARBON AND FIBRIN BASED PROSTHETIC IMPLANTS IN REGENERATING SPINAL CORD

Vincent Escarrat[1, 3], Bilal El-Waly[1, 3], Jimena Perez-Sanchez[1, 3], Jaspreet Kaur[1, 3], Florence Pelletier[1, 3], Jorge Collazos-Castro[4], Franck Debarbieux[1, 2, 3]

[1] Aix Marseille University, UMR7289 Institut de Neurosciences Timone, Marseille, France

[2] Institut Universitaire de France, Paris, France

[3] Aix Marseille University, CERIMED, Marseille, France

[4] Hospital Nacional de Paraplejicos, Neural Repair and Biomaterials laboratory, Toledo, Spain

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12:15 – 13:15

MILABS LUNCH SYMPOSIUM | LS 01 (MOZART 2 (GROUND FLOOR))

Behdad Pouran (MILabs, Netherlands)

The Lunch Symposium is organized by MILabs and is open to all attendees!

PROGRAMME & SPEAKERS:

- Sandra Heskamp, Nijmegen | **Quantitative imaging of hypoxic CAIX-positive tumor areas with low immune cell infiltration in syngeneic mouse tumor models**
- Chao Wu, MILabs | **Synergistic Hyper-Dimensional Photon Tomography from 1 eV to 1 MeV**

13:30 – 14:15

ELIZABETH M.C. HILLMAN, NEW YORK | THE NEED FOR SPEED: THE POWER OF MEASURING IN-VIVO DYNAMICS WITH HIGH-SPEED IMAGE | PL 02 (EUROPA SAAL (ENTRANCE 2ND FLOOR))

Anne Rios (Utrecht, Netherlands)

ELIZABETH M.C. HILLMAN | Herbert and Florence Irving Professor, Zuckerman Mind Brain Behavior Institute, Departments of Biomedical Engineering and Radiology (Physics) @ Columbia University

ElizabethHillman trained in **Physics and Medical Physics** at University College London, and completed post-doctoral work at Massachusetts General Hospital, Harvard Medical School. She moved to Columbia University in 2006 to establish the Laboratory for **Functional Optical Imaging**. Her research program encompasses the **development and application of high-speed imaging techniques** that use light and optics to capture information about living tissues, particularly the living brain. Her major contributions include the **development of dynamic contrast enhanced small animal molecular imaging (DyCE)** and **swept confocally-aligned planar excitation (SCAPE) microscopy**, an approach to high-speed 3D light sheet microscopy through a single objective lens. She has also leveraged high-speed multi-spectral wide-field fluorescence and reflectance imaging approaches to study neural dynamics and neurovascular coupling in the brains of awake behaving mice. Recent recognitions for her work include the 2020 Royal Microscopical Society Mid-Career Scientific Achievement Award and the 2018 SPIE Biophotonics Technology Innovator Award.

13:30 "THE NEED FOR SPEED": THE POWER OF MEASURING IN-VIVO DYNAMICS WITH HIGH-SPEED IMAGING AND MICROSCOPY

Elizabeth Hillman[1]

[1] Columbia University, Zuckerman Mind Brain Behavior, New York, New York, United States of America

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14:30 – 16:00

IMAGE-GUIDED DRUG DELIVERY | PS 06 (EUROPA SAAL (2ND FLOOR))

Jeff Bulte (Boston, USA); **Eva Jakab Toth** (Orleons, France)

14:30 INTRODUCTORY LECTURE

Rafael de Rosales

14:50 DEVELOPMENT OF ^{89}ZR-LABELED MICELLES FOR IMAGE-GUIDED PATIENT STRATIFICATION IN CANCER NANOMEDICINE

Alec Wang[1], Karolin Römhild[1], Masoud Sadeghzadeh[2], Alexandru Florea[2, 5, 6], Zaheer Ahmed[1], Eva Buhl[3], Sven Thoröe-Boveleth[4], Armin Azadkhah Shalmani[1], Sara Sanchez Berlanga[2], Jan-Niklas May[1], Josbert Metselaar[1], Fabian Kießling[1], Yang Shi[1], Quim Peña[1], Felix Mottaghy[2, 5, 6], Twan Lammers[1]

[1] RWTH Aachen University Hospital, Institute for Experimental Molecular Imaging, Aachen, Germany

[2] RWTH Aachen University Hospital, Department of Nuclear Medicine, Aachen, Germany

[3] RWTH Aachen University Hospital, Institute of Pathology, Aachen, Germany

[4] RWTH Aachen University Hospital, Institute for Occupational, Social and Environmental Medicine, Aachen, Germany

[5] Maastricht University Medical Center, Department of Radiology and Nuclear Medicine, Maastricht, Netherlands

[6] Maastricht University Medical Center, School for Cardiovascular Diseases (CARIM), Maastricht, Netherlands

15:02 DIRECT MONITORING OF DOXORUBICIN RELEASE *VIA* NIR-EMITTING YTTERBIUM LIPOSOMES

Sara Lacerda[1], Anthony Delalande[1], Svetlana Eliseeva[1], Agnès Pallier[1], Célia Bonnet[1], Frédéric Szeremeta[1], Sandra Même[1], Chantal Pichon[1], Stéphane Petoud[1], Éva Tóth[1]

[1] Centre de Biophysique Moleculaire, Orleans, France

15:14 TARGETLESS SOLID TUMOR TARGETING THROUGH SMART MAGNETIC NANOCOMPOSITES

Efres Belmonte-Reche[1], Monica Cerqueira[2, 3], Celine Gonçalves[2, 3], Fatima Baltazar[2, 3], Manuel Bañobre-López[1], Juan Gallo[1]

[1] International Iberian Nanotechnology Laboratory, Advanced (magnetic) Theranostic Nanostructures Lab/Health Cluster, Braga, Portugal

[2] University of Minho, Life and Health Sciences Research Institute (ICVS)/School of Medicine, Braga, Portugal

[3] ICVS/3B's – PT Government Associate Laboratory, Braga/Guimaraes, Portugal

15:26 MODIFICATION-FREE RADIOLABELING AND PET IMAGING OF THE CLINICALLY-USED NANOMEDICINE DOXIL

Peter Gawne[1], Amaia Carrascal-Miniño[1], Friedrich Baark[1], Azalea Khan[1], Rafael de Rosales[1]

[1] King's College London, School of Biomedical Engineering and Imaging Sciences, London, United Kingdom

15:38 INFLAMMATION-TARGETED MICROBUBBLE-MEDIATED DRUG DELIVERY ACROSS AN IN VITRO BLOOD-BRAIN BARRIER

Christopher Hark[1], Junlin Chen[1], Julia Blöck[1], Eva Buhl[2], Harald Radermacher[1], Anne Rix[1], Natascha Drude[3], Fabian Kiessling[1], Twan Lammers[1], Jan-Niklas May[1]

[1] University Clinic RWTH Aachen, Institute of Experimental Molecular Imaging, Aachen, Germany

[2] University Clinic RWTH Aachen, Institute for Pathology, Aachen, Germany

[3] Charité Berlin, Berlin Institute of Health at Charité, Berlin, Germany

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14:30 – 16:00

PET/SPECT, RADIONUCLIDE, X-RAY, CT | PROBE CHEMISTRY | PS 07 (MOZART 1 (GROUND FLOOR))

Paul E. Kinahan (Seattle, USA); **Sophie Stotz** (Tuebingen, Germany)

14:30 INTRODUCTORY LECTURE

Peter Scott

14:50 *IN VIVO* IMAGING OF MUTANT HUNTINGTIN USING [^{11}C]CHDI-180R PET IN A NONHUMAN PRIMATE MODEL OF HUNTINGTON'S DISEASE

Daniele Bertoglio[1, 2], Alison Weiss[3], William Liguore[3], Lauren Martin[4], Theodore Hobbs[4], John Templon[5], Celia Dominguez[6], Ignacio Munoz-Sanjuan[6], Vinod Khetarpal[6], Jeroen Verhaeghe[1], Steven Staelens[1], Jeanne Link[5], Longbin Liu[6], Jonathan Bard[6], Jodi McBride[3, 7]

[1] University of Antwerp, Molecular Imaging Center Antwerp (MICA), Antwerp, Belgium

[2] University of Antwerp, Bio-Imaging Lab, Antwerp, Belgium

[3] Oregon National Primate Research Center (ONPRC), Division of Neuroscience, Beaverton, United States of America

[4] Oregon National Primate Research Center (ONPRC), Division of Animal Resources and Research Support, Beaverton, United States of America

[5] Oregon Health and Science University (OHSU), Center for Radiochemistry Research, Portland, United States of America

[6] CHDI Management/CHDI Foundation, Los Angeles, United States of America

[7] Oregon Health and Science University (OHSU), Department of Behavioral Neuroscience, Portland, United States of America

15:02 SV2A PET AS A SURROGATE ENDPOINT IN PRECLINICAL AD DRUG DISCOVERY AND DEVELOPMENT

Jason Cai[1]

[1] Yale School of Medicine, New Haven, United States of America

15:14 NOVEL BI-HPDO3A CONTRAST AGENT FOR X-RAY COMPUTED TOMOGRAPHY

Rebecca Rizzo[1], Martina Capozza[1], Carla Carrera[2], Enzo Terreno[1]

[1] University of Turin, Department of Molecular Biotechnology and Health Sciences, Turin, Italy

[2] National Research Council, Institute of Biostructures and Bioimaging, Turin, Italy

15:26 [^{111}IN]IN-FNBPA5 AS A POTENTIAL IMAGING PROBE FOR ENDOMETRIOSIS

Belinda Trachsel[1, 2], Giulia Valpreda[1, 2], Stefan Imobersteg[1], Gad Singer[4], Regula Grabherr[4], Irene Burger[4], Rahel Kubik[4], Roger Schibli[1, 2], Viola Vogel[3], Martin Béhé[1]

[1] Paul Scherrer Institute, Centre of Radiopharmaceutical Sciences, Villigen, Switzerland

[2] ETH Zurich, Institute of Pharmaceutical Sciences, Zurich, Switzerland

[3] ETH Zurich, Department of Health Sciences and Technology, Zurich, Switzerland

[4] Kantonsspital Baden, Baden, Switzerland

15:27 PRECLINICAL EVALUATION OF LYSYL OXIDASE-LIKE 2 AS A TARGET FOR THE NUCLEAR IMAGING OF IDIOPATHIC PULMONARY FIBROSIS

Romane Vizier[1], Hugo Sikner[2], Anaïs-Rachel Garnier[2], Bertrand Collin[1], Mathieu Moreau[1], Michael Claron[1], Franck Denat[1], Pierre-Simon Bellaye[2], Victor Goncalves[1]

[1] Université Bourgogne Franche-Comté, Institut de Chimie Moléculaire de l'Université de Bourgogne UMR CNRS 6302, Dijon, France

[2] Centre Georges François Leclerc, Service de Médecine Nucléaire, Plateforme d'Imagerie et de Radiothérapie Précliniques, Dijon, France

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14:30 – 16:00

PROBES | LATE-BREAKING SESSION | PS 08 (MOZART 2 (GROUND FLOOR))

Sophie Poty (Montpellier); **Helmut Maecke** (Freiburg, Germany)

Late-Breaking Sessions differ from other Parallel Sessions: they are broader and thus, **no introductory lecture** is scheduled, but **seven shorter talks** selected from late-breaking abstract submissions.

14:30 PROGRAMMABLE MRI PROBES USING LANTHANIDE-BASED MOLECULAR ENCODING

Miloslav Polasek[1], Jan Kretschmer[1, 2], Tomáš David[1], Daniel Jirák[3], Martin Vít[3], Martin Dračínský[1], Ondřej Socha[1], Martin Kuchař[4], Radek Jurok[4], Ivana Císařová[5]

[1] Institute of Organic Chemistry and Biochemistry of the CAS, Prague, Czech Republic

[2] Charles University in Prague, Department of Organic Chemistry, Prague, Czech Republic

[3] Institute for Clinical and Experimental Medicine, Department of Radiodiagnostic and Interventional Radiology, Prague, Czech Republic

[4] University of Chemistry and Technology Prague, Department of Chemistry of Natural Compounds, Prague, Czech Republic

[5] Charles University in Prague, Department of Inorganic Chemistry, Prague, Czech Republic

14:42 EVALUATION OF NEXT GENERATION SENESCENCE TRACERS

Francisco Reche Pérez[1, 2], Jonathan Cotton[1, 2], Benyuan Zhou[1], Lars Zender[3, 2], Marcel Krueger[1], Bernd Pichler[1, 2]

[1] Werner Siemens Imaging Center, Eberhard Karls University, Department of Preclinical Imaging and Radiopharmacy, Tuebingen, Germany

[2] Cluster of Excellence iFIT "Image Guided and Functionally Instructed Tumor Therapies" (EXC 2180), Eberhard-Karls University of Tübingen, Tuebingen, Germany

[3] Division of Molecular Oncology of Solid Tumors, University Hospital Tuebingen, Department of Internal Medicine, Tuebingen, Germany

14:54 DEVELOPMENT OF A NEW IMMUNOTRACER TARGETING HUMAN CD8+ CYTOTOXIC T CELLS THROUGH RECOGNITION OF THE CD8B CHAIN

Timo De Groof[1], Yoline Lauwers[1], Tessa De Pauw[1], Cécile Vincke[2, 3], Jolien Van Craenenbroeck[2, 3], Geert Raes[2, 3], Jo Van Ginderachter[2, 3], Nick Devoogdt[1]

[1] Vrije Universiteit Brussel, In vivo Cellular and Molecular Imaging Laboratory, Brussels, Belgium

[2] VIB Center for Inflammation Research, Laboratory of Myeloid Cell Immunology, Brussels, Belgium

[3] Vrije Universiteit Brussel, Laboratory of Cellular and Molecular Immunology, Brussels, Belgium

15:06 DOPED- BAF_2 NANOCRYSTALS AS NOVEL MULTIFUNCTIONAL IMAGING PROBES FOR ^{19}F-MRI AND CT APPLICATIONS

Dana Cohen[1], Lothar Houben[2], Andrea Galisova[1], Inbal Biton[3], Amnon Bar-Shir[1]

[1] Weizmann Institute of Science, Molecular chemistry and material science, Rehovot, Israel

[2] Weizmann Institute of Science, Chemical research support, Rehovot, Israel

[3] Weizmann Institute of Science, Department of Veterinary Resources, Rehovot, Israel

15:18 IN VIVO NANOPARTICLE IMAGING CHARACTERIZES THE HEMATOPOIETIC MARROW AS A HUB FOR BIODISTRIBUTION SERVING AS A MARKER OF INFLAMMATORY SEVERITY

Ashish Tiwari[1], Narmeen Haj[1], Betsalel Elgrably[1], Galit Saar[2], Katrien Vandoorne[1]

[1] Technion-Israel Institute of Technology, Biomedical Engineering, Haifa, Israel

[2] Technion-Israel Institute of Technology, Biomedical Core Facility, Haifa, Israel

15:30 NANOSONOCHEMOTHERAPY FOR GLIOMA TREATMENT - FROM IN VITRO DRUG SCREENING TO IN VIVO THERAPY STUDIES

Jan-Niklas May[1], Anshuman Dasgupta[1], Helena Besse[2], Geir Klinkenberg[3], Anne Rix[1], Diana Möckel[1], Christopher Hark[1], Fabian Kiessling[1], Chrit Moonen[2], Ruth Schmid[3], Mario Ries[2], Twan Lammers[1]

[1] University Clinic RWTH Aachen, Institute for Experimental Molecular Imaging, Aachen, Germany

[2] University Medical Center Utrecht, Division of Imaging and Oncology, Utrecht, Netherlands

[3] SINTEF Industry, Department of Biotechnology and Nanomedicine, Trondheim, Norway

15:42 [^{18}F]FSPG PET-DERIVED SIGNATURE FOR EARLY RESPONSE ASSESSMENT TO COMBINED BLOCKADE OF EGFR AND GLUTAMINE METABOLISM IN WILD-TYPE *KRAS* COLORECTAL CANCER

Seong-Woo Bae[1], Jianbo Wang[1], Dimitra K Georgiou[1], Ling Geng[2, 3], Mohammed Noor Tantawy[3, 5], H. Charles Manning[1]

[1] MD Anderson Cancer Center, Cancer Systems Imaging, Houston, United States of America

[2] Vanderbilt Center for Molecular Probes, Vanderbilt University Medical Center, Nashville, United States of America

[3] Vanderbilt University Institute of Imaging Science, Vanderbilt University Medical Center, Nashville, United States of America

[4] Department of Radiology and Radiological Sciences, Vanderbilt University Medical Center, Nashville, United States of America

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14:30 – 16:00

TISSUE OMICS & OPTICAL TECHNOLOGIES | PS 09 (TRAKL 3RD FLOOR (MIRRORED IN PARACELSUS 2ND FLOOR))

Wolfgang Drexler (Vienna, Austria); **Jörg Hanrieder** (Mölndal, Sweden)

14:30 INTRODUCTORY LECTURE

Zoltan Takats

14:50 LIGHT-SEQ: LIGHT-DIRECTED *IN SITU* BARCODING OF BIOMOLECULES IN FIXED CELLS AND TISSUES FOR SPATIALLY INDEXED SEQUENCING DOWN TO SUBCELLULAR LEVEL

Jocelyn Kishi[1], Ninning Liu[1], Emma West[2], Kuanwei Sheng[1], Jack Jordanides[1], Matthew Serrata[1], Valeriy Pak[3], Jennifer Heck[3], Constance Cepko[2], Peng Yin[1], **Sinem Saka**[3]

[1] Wyss Institute for Biologically Inspired Engineering, Harvard University, Boston, United States of America

[2] Harvard Medical School, Boston, United States of America

[3] European Molecular Biology Laboratory (EMBL), Heidelberg, Germany

15:02 UNVEILING NEUROCHEMICAL CHANGES RELATED TO L-DOPA INDUCED DYSKINESIA IN PRIMATE PARKINSON'S DISEASE MODELS WITH MALDI-MSI

Elva Fridjonsdottir[1, 2], Reza Shariatgorji[1, 2], Tina Angerer[1, 2], Anna Nilsson[1, 2], Theodosia Vallianatou[1, 2], Luke Schembri[1], Ibrahim Kaya[1, 2], Luke Odell[1], Per Svenningsson[3], Erwan Bezard[4], Per Andrén[1, 2]

[1] Uppsala University, Department of Pharmaceutical Biosciences, Uppsala, Sweden

[2] Science for Life Laboratory, Spatial Mass Spectrometry, Uppsala, Sweden

[3] Karolinska Institutet, Department of Clinical Neuroscience, Stockholm, Sweden

[4] Université de Bordeaux, Institut des Maladies Neurodégénératives, Bordeaux, France

15:14 METABOLIC IMAGING AND OFF-LINE MULTI-OMICS OF TUMOUR SECTIONS USING INFRARED LASER ASSISTED RAPID EVAPORATIVE IONISATION MASS SPECTROMETRY

Zoltan Takats[1, 2, 4], Daniel Simon[2], Ronan Battle[3], Yuchen Xiang[1], Robbie Murray[3]

[1] Imperial College London, Department of Metabolism, Digestion and Reproduction, London, United Kingdom

[2] The Rosalind Franklin Institute, Harwell, United Kingdom

[3] Imperial College London, Department of Physics, London, United Kingdom

[4] Universite Lille, Laboratoire PRISM, Lille, France

15:26 QUANTITATIVE HISTOLOGY AND MASS SPECTROMETRY IMAGING ALLOW *EX VIVO* VALIDATION OF HYPERPOLARIZED MAGNETIC RESONANCE IMAGING *IN VIVO* USING [1,5-$^{13}C_2$]Z-OMPD IN TUMORS AND KIDNEYS

Martin Grashei[1], Pascal Wodtke[1], Thomas Metzler[2], Mihyun Park[3], Sebastian Gulde[4], Jason Skinner[1], Nadine Setzer[1], Sandra Sühnel[1], Natalia Pellegata[4], Nicole Strittmatter[3], Katja Steiger[2], Franz Schilling[1]

[1] Technical University of Munich, School of Medicine, Department of Nuclear Medicine, Klinikum rechts der Isar, Munich, Germany

[2] Technical University of Munich, School of Medicine, Comparative Experimental Pathology (CEP), Institute of Pathology, Munich, Germany

[3] Technical University of Munich, Department of Chemistry, Munich, Germany

[4] Helmholtz Zentrum München, Institute for Diabetes and Cancer, Munich, Germany

15:38 HIGH RESOLUTION SHORTWAVE-INFRARED FLUORESCENCE IMAGING OF NEAR-INFRARED DYES WITH END-TAIL EMISSION USING A SMALL-ANIMAL IMAGING DEVICE.

Francesca Arena[1], Francesca La Cava[1], Daniele Faletto[1], Miriam Roberto[1], Federico Crivellin[1], Francesco Stummo[1], Alessia Adamo[1], Mariangela Boccalon[1], Roberta Napolitano[1], Francesco Blasi[1], Adrian Taruttis[2], Max Koch[2], Erika Reitano[1]

[1] Bracco Imaging SpA, Colleretto Giacosa, Italy

[2] SurgVision GmbH, Munich, Germany

14:30 – 16:00

CARDIAC & VASCULAR DISEASES | REMODELING & CELL BIOLOGY | PS 10 (DOPPLER (4TH FLOOR))

Jesus Ruiz-Cabello (San Sebastian, Spain); **Max L. Senders** (Amsterdam, Netherlands)

14:30 INTRODUCTORY LECTURE

Thomas Bonnard

14:50 CYCLIC CHANGES IN MYOCARDIAL METABOLISM REVEALED BY ADENOSINE STRESS TEST AND HYPERPOLARIZED [1-13C]PYRUVATE CARDIOVASCULAR MAGNETIC RESONANCE IMAGING

Mohsen Redda[1], Nikolaj Bøgh[1], Christoffer Laustsen[1], Rolf Schulte[2], Esben Hansen[1]

[1] Aarhus University, MR Research Centre, Deparment of Clinical Medicine, Aarhus, Denmark

[2] GE, Healthcare, Munich, Germany

15:02 NON-INVASIVE PHOTOACOUSTIC MEASUREMENT OF CARDIAC OXYGENATION AND OPTICAL IMAGING OF PDGFBR BASED CONTRAST AGENTS IN ANEURYSMAL FIBULIN-4 MICE

Hamid Azzouzi[1], Ingeborg Nieuwenhuizen-Bakker[1], Anton Nikolaev[2], Herman Steen[3], Gijs Soest[2], **Jeroen Essers**[1, 4, 5]

[1] Erasmus University Medical Center, Molecular Genetics, Rotterdam, Netherlands

[2] Erasmus University Medical Center, Department of Cardiology, Rotterdam, Netherlands

[3] BiOrion technologies, Groningen, Netherlands

[4] Erasmus University Medical Center, Department of Radiation Oncology, Rotterdam, Netherlands

[5] Erasmus University Medical Center, Department of Vascular Surgery, Rotterdam, Netherlands

15:14 DERIVATION AND VALIDATION OF A NON-INVASIVE OPTOACOUSTIC IMAGING BIOMARKER FOR INTERMITTENT CLAUDICATION

Milenko Caranovic[1, 5, 8], Julius Kempf[1, 8], Yi Li[1], Adrian Regensburger[2], Anna Träger[1], Josefine Günther[1, 3], Werner Lang[1], Alexandra Wagner[2], Joachim Woelfle[2], Roman Raming[2], Lars-Philip Paulus[2], Adrian Bühler[2], Wolfgang Uter[4], Michael Uder[5], Christian-Alexander Behrendt[6], Markus Neurath[7, 9, 10], Maximilian Waldner[7, 9, 10], Ferdinand Knieling[2], Ulrich Rother[1]

[1] University Hospital Erlangen; Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Department of Vascular Surgery, Erlangen, Germany

[2] University Hospital Erlangen; Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Department of Pediatrics and Adolescent Medicine, Erlangen, Germany

[3] University Hospital Münster; Westfälische Wilhelms-Universität Münster (WWU), Department of Vascular and Endovascular Surgery, Münster, Germany

[4] Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Department of Medical Informatics, Biometry and Epidemiology, Erlangen, Germany

[5] University Hospital Erlangen; Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Institute of Radiology, Erlangen, Germany

[6] Asklepios Clinic Wandsbek; Asklepios Medical School Hamburg, Department of Vascular and Endovascular Surgery, Hamburg, Germany

[7] University Hospital Erlangen; Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Department of Medicine 1, Erlangen, Germany

[8] Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Faculty of Medicine, Erlangen, Germany

[9] University Hospital Erlangen; Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Deutsches Zentrum für Immuntherapie (DZI), Erlangen, Germany

[10] Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Erlangen Graduate School in Advanced Optical Technologies (SAOT), Erlangen, Germany

15:26 UNMASKING ENDOTHELIAL ACTIVATION AND THROMBO-INFLAMMATION AFTER EXPERIMENTAL SUBARACHNOID HEMORRHAGE USING MOLECULAR MAGNETIC RESONANCE IMAGING

Suzanne Goursaud[1], Manuel Navarro-Oviedo[1], Benoit Roussel[1], Clément Gakuba[1], Thomas Bonnard[1], Denis Vivien[1], Carine Ali[1], Maxime Gauberti[1], **Sara Martinez de Lizarrondo**[1]

[1] INSERM U1237 - PhIND, BB@C Institute, Caen, France

15:38 CHARACTERISING FIBROSIS IN DEEP VEIN THROMBOSIS USING NON-INVASIVE AND QUANTITATIVE MAGNETIC RESONANCE IMAGING (MRI)

Ling Gao[1], Nadia Chaher[1], Joana Serralha[2], Alberto Smith[2], Prakash Saha[2], Alkystis Phinikaridou[1, 3]

[1] King's College London, School of Biomedical Engineering & Imaging Sciences, London, United Kingdom

[2] King's College London, School of Cardiovascular and Metabolic Medicine & Science, London, United Kingdom

[3] King's College London, BHF Centre of Research Excellence, London, United Kingdom

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16:30 – 17:00

ESMI AWARD FOR EXCELLENT THESIS: MAX SENDERS | PRECISION IMAGING AND NANOIMMUNOTHERAPY FOR INFLAMMATORY ARTHEROSCLEROSIS | PL 03

(EUROPA SAAL (ENTRANCE 2ND FLOOR))

Bert Windhorst (Amsterdam, Netherlands); **Twan Lammers** (Aachen, Germany)

The society's **Award for Excellent PhD Thesis** is the highest honour presented by the ESMI to its early career researchers. It is a highly competitive selection process. The award 2022 is presented to Max Senders for his work on "**Precision Imaging and Nanoimmunotherapy for Inflammatory Artherosclerosis**".

"The committee was very impressed by the enormous breadth and depth of the research presented by Max Senders. Max has developed several novel approaches to detect and characterize atherosclerosis. These technologies may not only be valuable for the diagnostic workup of atherosclerosis but may also guide targeted therapeutic interventions."

16:30 PRECISION IMAGING AND NANOIMMUNOTHERAPY FOR INFLAMMATORY ATHEROSCLEROSIS

Max Senders[1, 2, 3]

[1] Amsterdam UMC, Biomedical Engineering, Amsterdam, Netherlands

[2] Icahn School of Medicine at Mount Sinai, Biomedical Engineering and Imaging Institute, New York, United States of America

[3] Leiden University Medical Center, Dept. of Surgery, Leiden, Netherlands

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17:15 – 18:45

DESIGN & APPLICATION OF (RADIO)THERANOSTICS | PS 11 (EUROPA SAAL (2ND FLOOR))

Weibo Cai (Madison, USA); **Eleni Gourni** (Bern, Switzerland)

17:15 INTRODUCTORY LECTURE

Susanne Kossatz

17:35 DESIGN OF PEPTIDES FOR PB-203 IMAGE-GUIDED PB-212 RECEPTOR TARGETED ALPHA PARTICLE RADIONUCLIDE THERAPY FOR CANCER – CHELATORS, LINKERS, AND ISOTOPE PRODUCTION.

Michael Schultz[1, 2], Nicholas Baumhover[1], Briana Cagle[1], Mengshi Li[1], Frances Johnson[1], Markus Puhlmann[1], Michael McDonald[1], Yusuf Menda[2], Bryce Nelson[3], Frank Wuest[3], John Wilson[3], Dongyoul Lee[1], Dijie Liu[1]

[1] Viewpoint Molecular Targeting, Inc., Coralville, United States of America

[2] University of Iowa, Radiology/Nuclear Medicine, Iowa City, United States of America

[3] University of Alberta, Oncology, Edmonton, Canada

17:47 EVALUATION OF FOLATE RADIOCONJUGATES FOR TARGETED RADIONUCLIDE THERAPY OF FOLATE RECEPTOR-ALPHA EXPRESSING TUMORS

Ana Katrina Mapanao[1], Patrycja Guzik[1], Roger Schibli[1, 2], Cristina Müller[1, 2]

[1] Paul Scherrer Institute, Center for Radiopharmaceutical Sciences ETH-PSI, Villigen PSI, Switzerland

[2] ETH Zurich, Department of Chemistry and Applied Biosciences, Zurich, Switzerland

17:59 LONG TERM *IN VIVO* MAGNETIC RESONANCE IMAGING OF INJECTABLE SELF-HEALING HYDROGELS BASED ON HYALURONIC ACID FOR CELL THERAPY

Moustoifa Said[1, 2, 3], Jing Jing[1, 3], Olivier Montigon[1, 2], Nora Colomb[1, 2], Benjamin Lemasson[1, 2], Emmanuel Barbier[1, 2], Olivier Detante[1, 2, 4], Claire Rome[1, 2], **Rachel Auzély-Velty**[1, 3]

[1] Université Grenoble Alpes, Grenoble, France

[2] Grenoble Institut Neurosciences, Inserm U1216, Grenoble, France

[3] Centre de Recherches sur les Macromolécules Végérales, CNRS, Grenoble, France

[4] CHU Grenoble Alpes, Grenoble, France

18:11 ^{89}ZR-IMMUNOPET TO GUIDE THE OPTIMIZATION OF BIODISTRIBUTION AND CLEARANCE OF ANTI-PSCA SCFV-FC ANTIBODY FRAGMENTS FOR ^{177}LU-RADIOIMMUNOTHERAPY (RIT) OF PROSTATE CANCER

Saad Ahmed[1], Felix Salazar[1], Jennifer Chean[1], Bao Chen[1], Sunidhi Jaiswal[1], Tove Olafsen[2], Anna Wu[1], **Kirstin Zettlitz**[1]

[1] City of Hope, Immunology & Theranostics, Duarte, California, United States of America

[2] City of Hope, Small Animal Imaging Core, Shared Resources, Duarte, United States of America

18:23 A NOVEL IMAGE-GUIDED CAR T-CELL APPROACH FOR DELIVERY OF A-RADIONUCLIDES TO ENHANCE ANTI-TUMOR KILLING EFFICACY IN LYMPHOMA

Laura Eibler[1], Keifer Kurtz[1], Lukas Carter[1], Megan Dacek[1], Samantha Lovibond[1], Emma Reynaud[1], Darren Veach[1], Sarah Qureshy[1], Michael McDevitt[1], Christopher Bourne[1], Sebastien Monette[1], Blesida Punzalan[1], Shireen Khayat[1], Svena Verma[1], Nai-Kong Cheung[1], Adam Kesner[1], Heiko Schöder[1], Sarah Cheal[1], David Scheinberg[1], Steven Larson[1], Simone Krebs[1]

[1] Memorial Sloan Kettering Cancer Center, Molecular Pharmacology, New York City, United States of America

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17:15 – 18:45

OPTOACOUSTIC, ULTRASOUND, MULTIMODAL | PROBE CHEMISTRY | PS 12 (MOZART 1 (GROUND FLOOR))

Sanhita Sinharay (Bengaluru, India); **Olga Koshkina** (Twente, Netherlands)

17:15 INTRODUCTORY LECTURE

Fernando Herranz

17:35 WHOLE-BRAIN IMAGING OF TUMOR-BRAIN INTERACTIONS USING ACOUSTIC REPORTER GENES AND FUNCTIONAL ULTRASOUND IMAGING

Claire Rabut[1], Shirin Shivaei[2], Mikhail Shapiro[1, 3]

[1] California Institute of Technology, Division of Chemistry and Chemical Engineering, Pasadena, United States of America

[2] California Institute of Technology, Division of Biology and Biological Engineering, Pasadena, United States of America

[3] Howard Hughes Medical Institute, Pasadena, United States of America

17:47 MICROBUBBLE SHAPE ASA NOVEL DESIGN PARAMETER TO IMPROVEULTRASOUND-MEDIATED DRUG DELIVERY

Anshuman Dasgupta[1], Twan Lammers[1]

[1] RWTH Aachen University Hospital, Experimental Molecular Imaging, Aachen, Germany

17:59 IMPROVING DIAGNOSIS IN PANCREATIC CANCER WITH CANCER-SPECIFIC PHOTOACOUSTIC IMAGING (PAI) PROBES

Ananya Sharma[1], Soumyashree Sahoo[1], Pooja Patkulkar[1], Sanhita Sinharay[1]

[1] Indian Institute of Science (IISc), Centre For BioSystems Science And Engineering (BSSE), Bangalore, India

18:11 SYNTHESIS OF SILICON-SUBSTITUTED HEMICYANINES FOR MULTIMODAL SWIR IMAGING

Amanda East[1], Michael Lee[1], Lukas Smaga[1], Chang Jiang[1], Sharath Mallojjala[2], Jennifer Hirschi[2], Jefferson Chan[1]

[1] University of Illinois at Urbana Champaign, Department of Chemistry, Urbana, Illinois, United States of America

[2] Binghamton University, Department of Chemistry, Binghamton, United States of America

18:23 TOWARDS IMPROVED SURGICAL TREATMENT OF BREAST CANCER: DUAL-MODALITY NANOCRYSTALS FOR THE DETECTION OF SENTINEL LYMPH NODES

Loren Deblock[1], Benedicte Descamps[2], Glenn Vergauwen[4, 5], Jens Debacker[3, 7], Isabel Van Driessche[1], Philippe Tummers[4, 5], Klaartje De Buysser[1], Jonathan De Roo[6], Christian Vanhove[2]

[1] Ghent University, Department of Chemistry, Ghent, Belgium

[2] Ghent University, Department of Electronics and information systems, Ghent, Belgium

[3] Ghent University, Department of Head and Skin, Ghent, Belgium

[4] Ghent University Hospital, Department of Gynaecology, Ghent, Belgium

[5] Ghent University Hospital, Department of Human Structure and Repair, Ghent, Belgium

[6] Universität Basel, Departement Chemie, Basel, Switzerland

[7] UZ Brussel, Department of Nuclear Medicine, Brussels, Belgium

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17:15 – 18:45

ONCOLOGY | LATE-BREAKING SESSION | PS 13 (MOZART 2 (GROUND FLOOR))

Frauke Alves (Goettingen, Germany); **Peter Gawne** (London, UK)

Late-Breaking Sessions differ from other Parallel Sessions: they are broader and thus, **no introductory lecture** is scheduled, but **seven shorter talks** selected from late-breaking abstract submissions.

17:15 TUMOR-TARGETED DELIVERY OF INTERLEUKIN-2 ENHANCES THE ANTI-CANCER ACTIVITY OF ONCOFAP RADIOLIGAND THERAPEUTICS

Paulina Dorten[1], Andrea Galbiati[2], Florian Gierse[1], Ettore Gilardoni[2], Michael Claesener[3], Sven Herrmann[1], Klaus Schäfers[1], Aureliano Zana[2], Jacqueline Mock[2], Dario Neri[2], Michael Schäfers[3, 1], Samuele Cazzamalli[2], **Philipp Backhaus**[3, 1]

[1] University of Münster, European Institute for Molecular Imaging (EIMI), Münster, Germany

[2] Philochem AG, R&D department, Otelfingen, Switzerland

[3] University Hospital Münster, Department of Nuclear Medicine, Münster, Germany

17:27 ^{18}F-FSPG PET IMAGING OF INTRAHEPATIC CHOLANGIOCARCINOMA TUMORS, A PILOT CLINICAL TRIAL

Dimitra K. Georgiou[1], Lesley Flynt[2], Ethan B. Ludmir[3], Milind Javle[4], Sunyoung Lee[4], Eugene J. Koay[3], **H. Charles Manning**[1]

[1] The University of Texas MD Anderson Cancer Center, Cancer Systems Imaging, Houston, United States of America

[2] The University of Texas MD Anderson Cancer Center, Nuclear Medicine, Houston, United States of America

[3] The University of Texas MD Anderson Cancer Center, GI Radiation Oncology, Houston, United States of America

[4] The University of Texas MD Anderson Cancer Center, GI Medical Oncology, Houston, United States of America

17:39 LIPOSOMAL DEXAMETHASONE PRIMES DESMOPLASTIC TUMORS FOR ENHANCED NANOMEDICINE DELIVERY AND EFFICACY

Tarun Ojha[1, 2], Josef Ehling[1], Diana Möckel[1], Maike Baues[1], Fabian Kiessling[1], Gert Storm[2], Josbert Metselaar[1], Twan Lammers[1, 2]

[1] RWTH Aachen University, Department of Nanomedicines and Theranostics/Institute for Experimental Molecular Imaging (ExMI), Aachen, Germany

[2] Utrecht University, Utrecht Institute for Pharmaceutical Sciences (UIPS), Utrecht, Netherlands

17:51 ^{2}H-MRI IMAGING OF DEUTERATED THYMIDINE AS A POTENTIAL TRACER FOR MAPPING MALIGNANCIES

Hyla Allouche-Arnon[1], Elton Montrazi[2], Balamurugan Subramani[1], Dan Cohen[1], Talia Harris[3], Lucio Frydman[2], Amnon Bar-Shir[1]

[1] Weizmann Institute of Science, Department of Molecular Chemistry and Material sciences, Rehovot, Israel

[2] Weizmann Institute of Science, Department of Chemical and Biological Physics, Rehovot, Israel

[3] Weizmann Institute of Science, Department of Chemical research support, Rehovot, Israel

18:03 AI-ENHANCED INTRA-OPERATIVE TUMOUR DELINEATION WITH MULTISPECTRAL SHORT-WAVE INFRARED FLUORESCENCE IMAGING

Dale Waterhouse[1], Laura Privitera[1, 2], Danail Stoyanov[1], Stefano Giuliani[1, 2, 3]

[1] University College London, Wellcome / EPSRC Centre for Interventional and Surgical Sciences, London, United Kingdom

[2] UCL Great Ormond Street Institute of Child Health, Cancer Section, Developmental Biology and Cancer Programme, London, United Kingdom

[3] NHS Foundation Trust, Great Ormond Street Hospital for Children, Department of Specialist Neonatal and Paediatric Surgery, London, United Kingdom

18:15 INVESTIGATING GLIOBLASTOMA HOST/TUMOUR VASCULATURE IN A CHICK EMBRYO MODEL USING ADVANCED IN VIVO IMAGING

Elisabeth Gash[1], Sarah Barnett[1, 2], Mahon Maguire[1], Simon Tewelde[1], Anne Herrmann[3], Sonia Rocha[3], Judy Coulson[1], Harish Poptani[1]

[1] University of Liverpool, Molecular and Clinical Cancer Medicine, Institute of Systems, Molecular & Integrative Biology, University of Liverpool, Liverpool, United Kingdom

[2] University of Liverpool, Technology, Infrastructure & Environment Directorate; Faculty of Health & Life Sciences, University of Liverpoo, Liverpool, United Kingdom

[3] University of Liverpool, Molecular Physiology & Cell Signalling, Institute of Systems, Molecular & Integrative Biology, University of Liverpool, Liverpool, UK, Liverpool, United Kingdom

18:27 ^{89}ZR-IMMUNO-PET WITH IMMUNE CHECKPOINT INHIBITORS: MEASURING TARGET ENGAGEMENT IN HEALTHY ORGANS

Jessica Wijngaarden[1, 2], Iris Miedema[2, 3], Johanna Pouw[2, 3], Gerben Zwezerijnen[1, 2], Egbert Smit[4], Adrianus de Langen[5], Idris Bahce[2, 6], Andrea Thiele[7], Ronald Boellaard[1, 2], Marc Huisman[1, 2], Catharina Menke-van der Houven van Oordt[2, 3]

[1] Amsterdam UMC location Vrije Universiteit Amsterdam, Department of Radiology and Nuclear Medicine, Amsterdam, Netherlands

[2] Cancer Center Amsterdam, Imaging and Biomarkers, Amsterdam, Netherlands

[3] Amsterdam UMC location Vrije Universiteit Amsterdam, Department of Medical Oncology, Amsterdam, Netherlands

[4] Leiden University Medical Center, Department of Pulmonary Diseases, Leiden, Netherlands

[5] Netherlands Cancer Institute – Antoni van Leeuwenhoek Hospital, Department of Thoracic Oncology, Amsterdam, Netherlands

[6] Amsterdam UMC location Vrije Universiteit Amsterdam, Department of Pulmonary Medicine, Amsterdam, Netherlands

[7] Boehringer Ingelheim Pharma GmbH & Co. KG, Department of Translational Medicine & Clinical Pharmacology, Biberach an der Riss, Germany

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17:15 – 18:45

BRAIN FUNCTION & COGNITION | PS 14 (TRAKL 3RD FLOOR (MIRRORED IN PARACELSUS 2ND FLOOR))

Nadja van Camp (Fontenay-Aux-Roses, France); **Yi Chen** (Tuebingen, Germany)

17:15 INTRODUCTORY LECTURE

Andreas Hess

17:35 CHEMOGENETIC MANIPULATION OF ASTROCYTES IMPROVES BRAIN PATHOLOGY IN THE 5XFAD MODEL OF ALZHEIMER'S DISEASE

Maria Elisa Serrano Navacerrada[1], Davide Di Censo[1], Eilidh MacNicol[1], Federico Turkheimer[1], Eugene Kim[1], Diana Cash[1]

[1] King's College London, Department of Neuroimaging, London, United Kingdom

17:47 THE PERFORMANCE OF DISCRIMINATION LEARNING IS REFLECTED IN AUDITORY-EVOKED BRAIN ACTIVATION PATTERNS – AN AUDITORY FMRI STUDY IN THE MONGOLIAN GERBIL

Annika Michalek[1], Patricia Wenk[1], Nicole Angenstein[1], Eike Budinger[1, 2]

[1] Leibniz Institute for Neurobiology, Combinatorial NeuroImaging Core Facility, Magdeburg, Germany

[2] Center for Behavioural Brain Sciences, Magdeburg, Germany

17:59 FUNCTIONAL ^{17}O-MRI TO MAP $CMRO_2$ CHANGES DURING SOMATOSENSORY CORTEX ACTIVATION

Amélie Tourais[1], Cameron Hery[1], Martine Guillermier[1], Julien Valette[1], Celine Baligand[1]

[1] Université Paris Saclay, CEA, CNRS, MIRCen, Laboratoire des Maladies Neurodégénératives, Fontenay-aux-Roses, France

18:11 EVALUATION OF TAU BURDEN, NEUROINFLAMMATION AND SYNAPTIC DENSITY IN A TRANSGENIC RAT MODEL USING PET RADIOTRACERS

Nisha K. Ramakrishnan[1], Annie Ziyi Zhao[1], Stephen Thompson[1], Selena Milicevic Sephton[1], Veronika Mate[2], Tomáš Smolek[2], Norbert Žilka[2], Franklin I. Aigbirhio[1]

[1] University of Cambridge, Molecular Imaging Chemistry Laboratory, Wolfson Brain Imaging Centre, Department of Clinical Neurosciences, Cambridge, United Kingdom

[2] Axon Neuroscience R&D Services SE, Bratislava, Slovakia

18:23 IDENTIFYING SPREADING DEPRESSION DURING REAL-TIME BRAINSTEM COMA INDUCTION WITH MULTI-MODAL FMRI

Wenchao Yang[1], Yuanyuan Jiang[1], Xin Yu[1]

[1] Massachusetts General Hospital, Athinoula A. Martinos Center for Biomedical Imaging, Charlestown, United States of America

17:15 – 18:45

X-RAY TECHNOLOGY | PS 15 (DOPPLER (4TH FLOOR))

Marlene Wiart (Lyon, France); **Anne Bonnin** (Villingen, Switzerland)

17:15 INTRODUCTORY LECTURE

Emmanuel Brun

17:35 INTRACELLULAR CRYO-CORRELATIVE XRF IMAGING OF INNOVATIVE NANO-HYBRIDS DESIGNED FOR X-RAY PHOTODYNAMIC THERAPY

Chiara Gramaccioni[1], Andrea Sorrentino[2], Dmitry Karpov[3], Emmanuel Brun[6], Loic Cuau[4], Ludwig Dubois[5], Ala Yaromina[5], Frederic Lerouge[4], Sylvain Bohic[1, 3]

[1] Université Grenoble Alpes, Inserm UA7 Synchrotron Radiation for Biomedicine (Strobe), Grenoble, France

[2] Alba Light Source, MISTRAL beamline, Cerdanyola del Valles, Spain

[3] European Synchrotron Radiation Facility, ID16A nanoimaging beamline, Grenoble, France

[4] Université Lyon 1, Laboratoire de Chimie UMR 5182, Ens de Lyon, CNRS, Lyon, France

[5] Maastricht University, The M-Lab, Department of Precision Medicine, Maastricht, Netherlands

[6] University Grenoble Alpes, INSERM, UA7, STROBE, Grenoble, France

17:47 REVEALING THE THREE-DIMENSIONAL MURINE BRAIN MICROSTRUCTURE BY CONTRAST-ENHANCED COMPUTED TOMOGRAPHY: A SCREENING STUDY

Tim Balcaen[1, 2, 3], Catherine Piens[2], Ariane Mwema[9, 10], Matthieu Chourrout[6], Laurens Vandebroek[7], Anne Des Rieux[9], Fabien Chauveau[6], Wim De Borggraeve[1], Delia Hoffmann[3, 5, 8], Greet Kerckhofs[2, 3, 4]

[1] KU Leuven, Chemistry, MolDesignS, Leuven, Belgium

[2] UCLouvain, Institute of Mechanics, Materials and Civil Engineering, MEED, Louvain-la-Neuve, Belgium

[3] UCLouvain, Institute of Experimental and Clinical Research, Woluwé-Saint-Lambert, Belgium

[4] KU Leuven, Materials Engineering, Leuven, Belgium

[5] KU Leuven, Prometheus, Division of Skeletal Tissue Engineering, Leuven, Belgium

[6] CNRS, Cermep, Bioran, Lyon, France

[7] KU Leuven, Biochemistry, Molecular and Structural Biology, LBMD, Leuven, Belgium

[8] KU Leuven, Skeletal Biology and Engineering Research Center, Leuven, Belgium

[9] UCLouvain, Advanced Drug Delivery and Biomaterials, Woluwé-Saint-Lambert, Belgium

[10] UCLouvain, Bioanalysis and Pharmacology of Bioactive Lipids, Woluwé-Saint-Lambert, Belgium

17:59 X-RAY SPECTRAL PHASE-CONTRAST MICRO-CT FOR THE SIMULTANEOUS EXTRACTION OF IODINE, BONE, AND SOFT TISSUE 3D MAPS

Luca Brombal[1, 2], Fulvia Arfelli[1, 2], Francesco Brun[3, 2], Diego Dreossi[4], Marco Endrizzi[5], Ralf Menk[4, 2], Alessandro Olivo[5], Luigi Rigon[1, 2], Mara Saccomano[6], Giuliana Tromba[4]

[1] University of Trieste, Department of Physics, Trieste, Italy

[2] INFN, Trieste, Trieste, Italy

[3] University of Trieste, Department of Engineering and Architecture, Trieste, Italy

[4] Elettra Sincrotrone Trieste, Trieste, Italy

[5] University College London, Department of Medical Physics and Biomedical Engineering, London, United Kingdom

[6] Helmholtz Zentrum München, Munich, Germany

18:11 CAN INFORMATION IN REGARDS TO THE STRUCTURAL COMPLEXITY OF THYMUS GLAND HELP US UNDERSTAND ITS FUNCTION?

Savvas Savvidis[1], Sara Campinoti[2], Roberta Ragazzini[2], Alessia Atzeni[1], Fabio Vittoria[1], Olumide Ogunbiyi[3], Mark Turmaine[4], Elizabeth Smith[4], Alberto Bravin[5], Alberto Mittone[5], Neil Sebire[3], Ciaran Hutchinson[3], Paola Bonfanti[2, 6], Alessandro Olivo[1]

[1] University College London, Department of Medical Physics and Biomedical Engineering, London, United Kingdom

[2] The Francis Crick Institute, Epithelial Stem Cell Biology & Regenerative Medicine laboratory, London, United Kingdom

[3] Great Ormond Street Hospital, Department of Histopathology, Level 3, Camelia Botnar Laboratories, London, United Kingdom

[4] University College London, Division of Biosciences, London, United Kingdom

[5] European Synchrotron Radiation Facility (ESRF), Grenoble, France

[6] University College London, Institute of Immunity & Transplantation, Division of Infection & Immunity, London, United Kingdom

18:23 CAN CELLS BE IMAGED WITH A LABORATORY PHASE-BASED X-RAY MICROSCOPE?

Michela Esposito[1], Alberto Astolfo[1], Silvia Cipiccia[1, 2], Charlotte Maughan Jones[1], Savvas Savvidis[1], Marco Endrizzi[1], Joseph Ferrara[3], Jayesh Dudhia[4], Alessandro Olivo[1]

[1] University College London, Department of Medical Physics and Biomedical Engineering, London, United Kingdom

[2] Diamond Light Source, Harwell Science and Innovation Campus, Didcot, United Kingdom

[3] Rigaku Americas Corporation, The Woodlands, Texas, United States of America

[4] The Royal Veterinary College, Hatfield, United Kingdom

THURSDAY, 16 MARCH, 2023

09:00 Cancer Therapy | preclinical | PS 16 (EUROPA SAAL (2nd floor))
09:00 MRI & MPI | Probe Chemistry | PS 17 (MOZART 1 (ground floor))
09:00 Technology | | Late-Breaking Session | PS 18 (MOZART 2 (ground floor))
09:00 Imaging Metabolism | PS 19 (TRAKL 3rd floor (mirrored in PARACELSUS 2nd floor))
09:00 Cardiac & Pulmonary Diseases | Remodeling & Cell Biology | PS 20 (DOPPLER (4th floor))
11:00 HERVÉ RIGNEAULT, Marseille | Label-Free Molecular Imaging with Coherent Raman Microscopy and Endoscopy | PL 04 (Europa Saal (entrance 2nd floor))
12:00 Tribute to Bob Gillies: Focus on Radiomics | FS 01 (EUROPA SAAL (2nd floor))
12:00 Mathematical Modeling in Image-Guided-Drug Delivery | FS 02 (MOZART 1 (ground floor))
12:00 Pharma's Perspective on the Role of Imaging in Immune-Oncology | FS 03 (MOZART 2 (ground floor))
12:00 Multiscale Imaging of Organ-specific Inflammation | FS 04 (TRAKL 3rd floor (mirrored in PARACELSUS 2nd floor))
12:00 Genetically Encoded Tools | FS 05 (DOPPLER (4th floor))
13:45 Members' Assembly | MA2023 (DOPPLER (4th floor))
14:30 Tumour Microenvironment | PS 21 (EUROPA SAAL (2nd floor))
14:30 MR & Hyperpolarization Technologies | PS 22 (MOZART 1 (ground floor))
14:30 Brain Metabolism, Microstructure & Anatomy | PS 23 (MOZART 2 (ground floor))
14:30 Interventional Imaging | PS 24 (TRAKL 3rd floor (mirrored in PARACELSUS 2nd floor))
14:30 Radiomics, Machine Learning & AI | PS 25 (DOPPLER (4th floor))
16:30 ESMI AWARD 2023: PETER VAN ZIJL, Baltimore | Molecular Imaging Using the Water Signal in MRI | PL 05 (Europa Saal (entrance 2nd floor))
17:30 Dive Deep into your Sample – the Miltenyi 3D Imaging Workflow | IND 01 (EUROPA SAAL (2nd floor))
17:30 Precise Quantitation of your Optical Probe Using 360° 3D Imaging from TRIFOIL | IND 02 (MOZART 1 (ground floor))
17:30 Getting the most out of your Image Data with Euro-BioImaging | INF 01 (MOZART 2 (ground floor))
17:30 Addressing Challenges in Radiation Oncology by RadNet | INF 02 (TRAKL 3rd floor (mirrored in PARACELSUS 2nd floor))
17:30 AMICE | Advanced Multi-modal Imaging Centers - a Dutch collaborative model | INF 03 (DOPPLER (4th floor))

09:00 – 10:30

CANCER THERAPY | PRECLINICAL | PS 16 (EUROPA SAAL (2ND FLOOR))

Cristina Müller (Villingen, Switzerland); **Jan-Niklas May** (Aachen, Germany)

09:00 INTRODUCTORY LECTURE
Sandra Heskamp

09:20 DOSIMETRY-BASED IMMUNOMODULATION OF RADIOPHARMACEUTICAL THERAPY: DIFFERENCES BETWEEN ALPHA AND BETA EMITTERS

Carolina de Aguiar Ferreira[1], Hemanth Potluri[2], Christopher Massey[1], Joseph Grudzinski[1], Amanda Carston[1], Anna Thickens[1], Nathan Clemons[1], Zachary Rosenkrans[1], Caroline Kerr[4], Anatoly Pinchuk[1], Ohyun Kwon[1], Justin Jeffery[5], Bryan Bednarz[3, 1], Zachary Morris[4, 5], Jamey Weichert[1, 2, 5], Douglas McNeel[2, 5], Reinier Hernandez[1, 3, 5]

[1] University of Wisconsin-Madison, Departments of Medical Physics and Radiology, Madison, United States of America

[2] University of Wisconsin-Madison, Department of Medicine, Madison, United States of America

[3] University of Wisconsin-Madison, Pharmaceutical Sciences Program, Madison, United States of America

[4] University of Wisconsin-Madison, Department of Human Oncology, Madison, United States of America

[5] University of Wisconsin-Madison, Carbone Cancer Center, Madison, United States of America

09:32 COMBINATION OF PDT AND IMMUNE CHECKPOINT BLOCKERS SHOWS SEX RELATED SURVIVAL BENEFIT IN MURINE IMMUNOLOGICAL "HOT" AND "COLD" PDAC MODELS.

Roisin McMorrow[1, 2, 4], Dominic Robinson[3], Riette de Bruijn[3], Laura Mezzanotte[1, 2], Clemens Lowik[1]

[1] Erasmus Medical Centre, Department of Radiology and Nuclear medicine, Rotterdam, Netherlands

[2] Erasmus Medical Centre, Department of Molecular Genetics, Rotterdam, Netherlands

[3] Erasmus Medical Centre Cancer Institute, Center for Optical Diagnostics and Therapy, Department of Otorhinolaryngology, Head and Neck surgery, Rotterdam, Netherlands

[4] Percuros BV, Leiden, Netherlands

09:44 SENSITIZATION OF SMALL CELL LUNG CANCER TO ^{177}LU-DOTA-TOC PRRT VIA DNA DAMAGE REPAIR INHIBITION

Hartmut Rauch[1, 2], Kirti Janghu[1, 2], Nghia Nguyen[1, 2], Wolfgang Weber[1], Susanne Kossatz[1, 2, 3]

[1] University Hospital Klinikum rechts der Isar at Technical University Munich, Department of Nuclear Medicine, School of Medicine, Munich, Germany

[2] Technical University Munich, Central Institute for Translational Cancer Research (TranslaTUM), School of Medicine, Munich, Germany

[3] Technical University Munich, Department of Chemistry, School of Natural Sciences, Munich, Germany

09:56 [^{18}F]FSPG AS A BIOMARKER OF DRUG INDUCED AND IMMUNE-MEDIATED FERROPTOSIS

Oskar Vilhelmsson Timmermand[1], Abigail Barber[1], Richard Edwards[1], Muhammet Tanc[1], Hannah Greenwood[1], Timothy Witney[1]

[1] King's College London, Department of Imaging Chemistry and Biology, School of Biomedical Engineering and Imaging Sciences, London, United Kingdom

10:08 IMAGING OF CRISPR-CAS9 EDITED CAR-T CELLS IN A SOLID TUMOR USING MULTIMODAL REPORTER GENES

Rafael Sanchez-Pupo[1], John Kelly[1], Nourhan Shalaby[2], Ying Xia[1], Francisco Martinez[1], John Ronald[1, 2, 3]

[1] The University of Western Ontario, Robarts Research Institute, Imaging, London, Ontario, Canada

[2] The University of Western Ontario, Medical Biophysics, London, Canada

[3] Lawson Health Research Institute, London, Canada

09:00 – 10:30

MRI & MPI | PROBE CHEMISTRY | PS 17 (MOZART 1 (GROUND FLOOR))

Andre Martins (Tuebingen, Germany); **Rachel Katz-Brull** (Jerusalem, Israel)

09:00 INTRODUCTORY LECTURE
Juan Gallo

09:20 MN^{2+}-BISPIDINES: MN^{2+}-BASED MRI AGENTS WITH HIGH SELECTIVITY, INERTNESS AND RELAXIVITY
Daouda Ndiaye[1], Patrick Cieslik[2], Peter Comba[2], **Eva Toth**[1]
[1] Centre of Molecular Biophysics, CNRS, Orléans, France
[2] University of Heidelberg, Heidelberg, Germany

09:32 IMAGING REMYELINATION USING THE MRI GENE REPORTER OATP
Eliane Brechbühl[1], Myfanwy Hill[2], Robin Franklin[2], Kevin Brindle[1]
[1] University of Cambridge, Cancer Research UK, Cambridge Institute, Cambridge, United Kingdom
[2] University of Cambridge, Wellcome Trust-Medical Research Council Cambridge Stem Cell Institute, Cambridge, United Kingdom

09:44 IMAGING EXTRACELLULAR LACTATE USING LANTHANIDE-PCTA-BASED PARACEST SHIFT REAGENTS
Remy Chiaffarelli[1, 2, 3], Paul Jurek[4], Pedro Cruz[5], Max Zimmermann[1, 2, 3], Carlos Geraldes[5], Garry Kiefer[5], André Martins[1, 2, 3]
[1] University Hospital Tuebingen, Werner Siemens Imaging Center, Department of Preclinical Imaging and Radiopharmacy, Tuebingen, Germany
[2] University of Tuebingen, Cluster of Excellence iFIT (EXC 2180) "Image-Guided and Functionally Instructed Tumor Therapies", Tuebingen, Germany
[3] University of Tübingen, Germany, German Cancer Consortium (DKTK), partner site Tübingen, Heidelberg, Germany
[4] Macrocyclics, Inc., Plano, TX, United States of America
[5] University of Coimbra, Coimbra Chemistry Center - Institute of Molecular Sciences (CQC-IMS), Coimbra, Portugal

09:56 HOT AND GREEN: POLYPHOSPHONATE IMAGING AGENTS FOR HOT-SPOT PHOSPHOROUS-31 MAGNETIC RESONANCE IMAGING
Timo Rheinberger[1], Vera Flocke[2], Anton Windfelder[3, 4], Naomi Hamelmann[5], Ulrich Flögel[2], Frederik Wurm[1], Olga Koshkina[1]
[1] University of Twente, Sustainable Polymer Chemistry Group, Department of Molecules and Materials, MESA+ Institute of Nanotechnology, Enschede, Netherlands
[2] Heinrich-Heine-University, Department of Molecular Cardiology, Experimental Cardiovascular Imaging, Düsseldorf, Germany
[3] Fraunhofer Institute for Molecular Biology and Applied Ecology IME, Department of Bioresources, Giessen, Germany
[4] Justus Liebig University, Laboratory of Experimental Radiology, Giessen, Germany
[5] University of Twente, Biomolecular Nanotechnology Group, Department of Molecules and Materials, MESA+ Institute of Nanotechnology, Enschede, Netherlands

10:08 ALL-IN-ONE SUPERPARAMAGNETIC RADIOPAQUE NANOCOMPLEX FOR *IN VIVO* MRI, MPI, AND CT STEM CELL TRACKING
Chao Wang[1, 2], Ali Shakeri-Zadeh[1, 2], Shreyas Kuddannaya[1, 2], Dian Arifin[1, 2], **Jeff Bulte**[1, 2]
[1] Johns Hopkins University, Division of MR Research, Baltimore, Maryland, United States of America
[2] Johns Hopkins University, Institute for Cell Engineering, Baltimore, United States of America

09:00 – 10:30

TECHNOLOGY | | LATE-BREAKING SESSION | PS 18 (MOZART 2 (GROUND FLOOR))

Christian Vanhove (Ghent, Belgium); **Giannis Zacharakis** (Heraklion, Greece)

Late-Breaking Sessions differ from other Parallel Sessions: they are broader and thus, **no introductory lecture** is scheduled, but **seven shorter talks** selected from late-breaking abstract submissions.

09:00 FIRST IN VIVO RESULTS FOR A NOVEL MACROSCALE TIME-DOMAIN FLUORESCENCE IMAGING SYSTEM

Hans Ingelberts[1], Simone Janssen[2], Thomas Van den Dries[1], Thomas Lapauw[1], Sevada Sahakian[1], Pooria Iranian[1], Marc Stroet[1], Laurens Raes[1], Maarten Kuijk[1], Sophie Hernot[1]

[1] Vrije Universiteit Brussel, Brussels, Belgium

[2] Ghent university, Merelbeke, Belgium

09:12 A PHYSICS-INFORMED FRAMEWORK USING SYNTHETIC WHOLE-RETINA BLOOD VESSEL NETWORKS FOR TRAINING DEEP NEURAL NETWORKS AND SIMULATING RETINAL PATHOPHYSIOLOGY

Emmeline Brown[1, 2, 3], Andrew Guy[1, 2], Natalie Holroyd[1, 2], Claire Walsh[1, 4], Rebecca Shipley[4, 1], Ranjan Rajendram[3, 5], Simon Walker-Samuel[1, 2]

[1] University College London, Centre for Computational Medicine, London, United Kingdom

[2] University College London, Centre for Advanced Biomedical Imaging, London, United Kingdom

[3] Moorfields Eye Hospital, NHS Foundation Trust, London, United Kingdom

[4] University College London, Mechanical Engineering, London, United Kingdom

[5] University College London, Institute of Ophthalmology, London, United Kingdom

09:24 IMPACT OF AN SLC30A8 LOSS-OF-FUNCTION VARIANT ON THE PANCREATIC DISTRIBUTION OF ZINC AND MANGANESE: LASER ABLATION-ICP-MS AND POSITRON EMISSION TOMOGRAPHY STUDIES IN MICE

George Firth[1], Eleni Georgiadou[2], Alexander Griffiths[3], Maral Amrahli[3], Jana Kim[1], Zilin Yu[1], Ming Hu[2], Haruka Okamoto[4], Daniel Gomez[4], Theodora Stewart[3], Isabelle Leclerc[2, 6], Philip Blower[1], Guy Rutter[2, 5, 6]

[1] King's College London, Imaging Chemistry and Biology, London, United Kingdom

[2] Imperial College London, Section of Cell Biology and Functional Genomics, London, United Kingdom

[3] King's College London, London Metallomics Facility, London, United Kingdom

[4] Regeneron Pharmaceuticals, New York, United States of America

[5] Nanyang Technological University, Lee Kong Chian School of Medicine, Singapore, Singapore

[6] University of Montreal, CHUM Research Center and Faculty of Medicine, Quebec, Canada

09:36 FEASIBILITY OF TOMOSYNTHESIS AS A SURROGATE FOR CT IN PET/CT OF ADULT ZEBRAFISH

Leoni de Graaf[1], Steven Seeger[1], Magdalena Rafecas[1]

[1] Universität zu Lübeck, Institut für Medizintechnik, Lübeck, Germany

09:48 NONDESTRUCTIVE REAL-TIME CELL VIABILITY ASSESSMENT USING EPR OXYGEN IMAGING

Mrignayani Kotecha[1], Safa Hameed[1], Navin Viswakarma[1], Eliyas Siddiqui[1], Boris Epel[1, 2]

[1] O2M Technologies, LLC, Chicago, United States of America

[2] The University of Chicago, Chicago, United States of America

10:00 A HIGHLY SENSITIVE DETECTION OF ZEPTOMOLAR PROTEINS CONCENTRATION BY A SINGLE MOLECULE IMAGING

Luluh Alhassan[1], Tewfik Soulimane[2], Christophe Silien[3]

[1] University of Limerick, School of Natural Science, Department of Chemical science/ Bernal Institute, Limerick, Ireland

[2] University of Limerick, School of Natural Science, Department of Chemical science/ Bernal Institute, Limerick, Ireland

[3] University of Limerick, School of Natural Science, Department of Physics/Bernal Institute, Limerick, Ireland

10:12 MULTISCALE 3D IMAGING OF SARS-COV-2 INFECTED MACAQUE HEARTS USING SYNCHROTRON PHASE CONTRAST TOMOGRAPHY AND MULTIPHOTON MICROSCOPY.

Angelika Svetlove[1, 2, 8], Christian Dullin[2, 3, 4], Jonas Albers[5], Ivanela Kondova[6], Marieke Stammes[6], Lorenzo D'Amico[7], Elena Longo[7], Adriano Contillo[7], Giuliana Tromba[7], Frauke Alves[1, 2, 8], Fernanda Ramos-Gomes[1]

[1] Max-Planck-institute for Multidisciplinary Sciences, Translational Molecular Imaging Group, Göttingen, Lower Saxony, Germany

[2] University Medical Centre Göttingen, Institute for Diagnostic and Interventional Radiology, Göttingen, Germany

[3] University Hospital Heidelberg, Institute for Diagnostic and Interventional Radiology, Heidelberg, Germany

[4] University Hospital Heidelberg, TLRC (Translational Lung Research Center), Heidelberg, Germany

[5] European Molecular Biology Laboratory, Hamburg Unit c/o DESY, Hamburg, Germany

[6] Biomedical Primate Research Centre (BPRC), Rijswijk, Netherlands

[7] Elettra - Sincrotrone Trieste S.C.p.A, SYRMEP, Trieste, Italy

[8] Cluster of Excellence, Göttingen, Germany

09:00 – 10:30

IMAGING METABOLISM | PS 19 (TRAKL 3RD FLOOR (MIRRORED IN PARACELSUS 2ND FLOOR))

Uwe Himmelreich (Leuven, Belgium); **Lara Garcia Varela** (Santiago de Compostela, Spain)

09:00 INTRODUCTORY LECTURE

Harish Poptani

09:20 MR-BASED PHENOTYPING REVEALS EARLY LIPODYSTROPHY IN DIET-INDUCED OBESITY

Vera Flocke[1], Katja Wegener[2], Tamara Straub[1], Maria Grandoch[2], Ulrich Flögel[1]

[1] Heinrich Heine University, Institute for Molecular Cardiology, Düsseldorf, Germany

[2] Heinrich Heine University, Institute for Pharmacology and Clinical Pharmacology, Düsseldorf, Germany

09:32 ASSESSMENT OF FREE FATTY ACID METABOLISM IN FATTY LIVER DISEASE

Usevalad Ustsinau[1], Viktoria Ehret[2], Joachim Friske[3], Clemens Fürnsinn[2], Thomas Scherer[2], Thomas Helbich[3], Markus Hacker[1], Martin Krššák[2], Cécile Philippe[1]

[1] Medical University of Vienna, Division of Nuclear Medicine, Department of Biomedical Imaging and Image-Guided Therapy, Vienna, Austria

[2] Medical University of Vienna, Division of Endocrinology and Metabolism, Department of Medicine III, Vienna, Austria

[3] Medical University of Vienna, Division of Molecular and Structural Preclinical Imaging, Department of Biomedical Imaging and Image-Guided Therapy, Vienna, Austria

09:44 HYBRID DETECTION OF EXTRACELLULAR LACTOSIS AND ACIDOSIS BY NON-INVASIVE SHIFT/ACIDO CEST MRI

Anaïs Choffart[1], Remy Chiaffarelli[1], Sabrina Hoffmann[1], André F. Martins[1, 2, 3]

[1] Werner Siemens Imaging Center, Department of Preclinical Imaging, University Hospital of Tübingen, Tuebingen, Germany

[2] Cluster of Excellence iFIT (EXC 2180) "Image-Guided and Functionally Instructed Tumor Therapies", University of Tübingen, Tübingen, Germany

[3] German Cancer Research Center (DKFZ), German Cancer Consortium (DKTK), partner site Tübingen, Heidelberg, Germany

09:56 POSITRON EMISSION TOMOGRAPHY IMAGING OF THE SODIUM IODIDE SYMPORTER SENSES REAL-TIME ENERGY STRESS *IN VIVO*

Piotr Dzien[1], Agata Mackintosh[1], Gaurav Malviya[1], Emma Johnson[1], Dmitry Soloviev[1], Gavin Brown[1], Colin Nixon[1], Alejandro Huerta-Uribe[1], Oliver Maddocks[3], Scot Lyons[2], Karen Blyth[1], David Lewis[1]

[1] CRUK Beatson Institute for Cancer Research, BICR, Glasgow, United Kingdom

[2] Cold Spring Harbor Laboratory, CSHL, New York, United States of America

[3] University of Glasgow, School of Cancer Sciences, Gasgow, United Kingdom

10:08 IMAGING FIBROGENIC KIDNEY METABOLISM WITH HYPERPOLARIZED [1-^{13}C]PYRUVATE MRI

Nikolaj Bøgh[1], Lotte Bertelsen[1], Camilla Rasmussen[1], Sabrina Bech[1], Thomas Thorsen[1], Esben Hansen[1], Christoffer Laustsen[1]

[1] Aarhus University, MR Research Center, Aarhus, Denmark

09:00 – 10:30

CARDIAC & PULMONARY DISEASES | REMODELING & CELL BIOLOGY | PS 20 (DOPPLER (4TH FLOOR))

Sam Bayat (Saint Martin d'Hères, France); **Alkystis Phinikaridou** (London, UK)

09:00 INTRODUCTORY LECTURE

David Sosnovik

09:20 IMAGING CHRONIC CARDIOVASCULAR DISEASE USING HYPOXIA TARGETING PET TRACERS.

Friedrich Baark[1], Aidan Michaels[1], Alex Rigby[1], Charlotte Rivas[1], Jana Kim[1], Thomas Eykyn[1], James Clark[2], Philip Blower[1], Richard Southworth[1]

[1] King's College London, Biomedical Engineering & Imaging Sciences, London, United Kingdom

[2] King's College London, Cardiovascular and Metabolic Medicine & Sciences, London, United Kingdom

09:32 THE ROLE OF STERNUM BONE MARROW IN EMERGENCY HEMATOPOIESIS AFTER MYOCARDIAL INFARCTION

Marwan Ahmed Ahmed Hamid[1], Mareike Cramer[2], Hauke Dietz[3], Florian Bönner[4], Malte Kelm[5], Maria Grandoch[6], Ulrich Flögel[7]

[1] heinrich heine university düsseldorf, Institute for Molecular Cardiology, Düsseldorf, Germany

[2] University Hospital Düsseldorf, Department of Cardiology, Pneumology and Angiolog, Düsseldorf, Germany

[3] heinrich heine university düsseldorf, Institute for Molecular Cardiology, Düsseldorf, Germany

[4] University Hospital Düsseldor, Department of Cardiology, Pneumology and Angiology, Düsseldorf, Germany

[5] heinrich heine university düsseldorf, Cardiovascular Research Institute Düsseldorf, Cardiovascular Research Institute Düsseldorf, Düsseldorf, Germany

[6] heinrich heine university düsseldorf, Department of Pharmacology and Clinical Pharmacology, Düsseldorf, Germany

[7] heinrich heine university düsseldorf, Institute for Molecular Cardiology, Cardiovascular Research Institute Düsseldorf, Department of Cardiology, Pneumology and Angiology, Düsseldorf, Germany

09:44 UNDERSTANDING THE ROLE OF CARDIAC FIBROSIS IN THE DEVELOPMENT AND TREATMENT OF HEART FAILURE USING MOLECULAR IMAGING PROBES AND NOVEL THERAPEUTICS

Konstantina Amoiradaki[1], Mateusz Tomczyk[2, 6], Gastao Lima da Cruz[1, 3], Carlos Velasco[1], Francesca Bortolotti[4], René Botnar[1, 5, 6], Claudia Prieto[1, 5], Mauro Giacca[2, 6], Alkystis Phinikaridou[1, 6]

[1] King's College London, School of Biomedical Engineering and Imaging Sciences, London, United Kingdom

[2] King's College London, School of Cardiovascular and Metabolic Medicine a, London, United Kingdom

[3] University of Michigan, Department of Radiology, Michigan, United States of America

[4] International Centre for Genetic Engineering and Biotechnology, Molecular Medicine Laboratory, Trieste, Italy

[5] Pontificia Universidad Católica de Chile, Escuela de Ingeniería, Santiago, Chile

[6] King's College London, BHF Centre of Research Excellence, London, United Kingdom

09:56 PET IMAGING OF SENESCENCE IN A PULMONARY FIBROSIS MOUSE MODEL

Simon Isser[1], Jonathan Cotton[1], Andreas Maurer[1, 2], Gerald Reischl[1, 2], Irene Gonzales-Menendez[2, 3], Bernd Pichler[1, 2], Nicolas Beziere[1, 4]

[1] Eberhard Karls University Tübingen, Werner Siemens Imaging Center, Department of Preclinical Imaging and Radiopharmacy, Tübingen, Germany

[2] Eberhard Karls University Tübingen, Cluster of Excellence iFIT (EXC 2180) "Image Guided and Functionally Instructed Tumor Therapies", Tübingen, Germany

[3] Eberhard Karls University Tübingen, Department of Pathology and Neuropathology, Tübingen, Germany

[4] Eberhard Karls University Tübingen, Cluster of Excellence CMFI (EXC 2124) "Controlling Microbes to Fight Infections", Tübingen, Germany

10:08 MICRO-CT (µCT)-DERIVED VENTILATION BIOMARKERS FOR THE LONGITUDINAL ASSESSMENT OF PATHOLOGY AND RESPONSE TO THERAPY IN A MOUSE MODEL OF LUNG FIBROSIS

Francesca Pennati[1], Erica Ferrini[3], Davide Bernardi[3], Nicola Sverzellati[2], Franco Stellari[4], Andrea Aliverti[1]

[1] Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Milan, Italy

[2] University of Parma, Department of Medicine and Surgery, Parma, Italy

[3] University of Parma, Department of Veterinary Science, Parma, Italy

[4] Chiesi Farmaceutici S.p.A., Pharmacology and Toxicology Department Corporate Pre-Clinical R&D, Parma, Italy

11:00 – 11:45

HERVÉ RIGNEAULT, MARSEILLE | LABEL-FREE MOLECULAR IMAGING WITH COHERENT RAMAN MICROSCOPY AND ENDOSCOPY | PL 04 (EUROPA SAAL (ENTRANCE 2ND FLOOR))

Jan Grimm (New York, USA); **Sophie Hernot** (Brussel, Belgium)

HERVÉ RIGNEAULT | CNRS Research Director at the Fresnel Institute in Marseille, France

Hervé Rigneault was recruited by CNRS in 1995 to work on light emission in optical microcavities for quantum optics applications. In the early 2000s he became interested in the detection of individual fluorescent molecules and started to work at the **interface between physics and biology**. His initial work on fluorescence correlation spectroscopy evolved towards nonlinear imaging and more particularly coherent **Raman imaging in microscopy** where he developed both fundamental, instrumental and applied aspects. In the 2010's his work evolves towards the development of endoscopes allowing to activate nonlinear contrasts like 2photon fluorescence, harmonic generation and coherent Raman.

11:00 LABEL-FREE MOLECULAR IMAGING WITH COHERENT RAMAN MICROSCOPY AND ENDOSCOPY

Hervé Rigneault[1]

[1] Aix-Marseille Univ, CNRS, Ecole Centrale, Marseille, France

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12:00 – 13:30

TRIBUTE TO BOB GILLIES: FOCUS ON RADIOMICS | FS 01 (EUROPA SAAL (2ND FLOOR))

Michal Neeman (Rehovot, Israel); **Bernd Pichler** (Tuebingen, Germany)

The European Society for Molecular Imaging pays tribute to Robert (Bob) Gillies, who sadly passed away on the 7th June 2022. Bob, a leader in the field of molecular imaging, was distinguished for his studies of tumour microenvironment and the development of radiomics.

He was a kind and generous man, an inspiring mentor and educator, and a highly respected colleague and dear friend. So many wonderful, precious moments - scientific and personal - will always be remembered. Thank you, Bob!

12:00 INTRODUCTION TO RADIOMICS

Kevin Brindle

12:20 A DNA TOOLBOX FOR SPATIAL BIOLOGY FROM IMAGING TO SEQUENCING

Sinem Saka[1]

[1] European Molecular Biology Laboratory (EMBL), Genome Biology Unit, Heidelberg, Baden-Württemberg, Germany

12:40 MASS SPECTROMETRIC IMAGING: THE FUTURE OF HISTOPATHOLOGY OR A NICHE APPLICATION FOR SYSTEMS BIOLOGISTS?

Zoltan Takats[1, 2, 3]

[1] Imperial College London, Metabolism, Digestion and Reproduction, London, United Kingdom

[2] Rosalind Franklin Institute, Biological Mass Spectrometry, Harwell, United Kingdom

[3] INSERM, Laboratoire PRISM, Lille, France

13:00 DR. ROBERT GILLIES TRIBUTE

Robert Gatenby[1]

[1] Moffitt Cancer Center, Tampa, United States of America

12:00 – 13:30

MATHEMATICAL MODELING IN IMAGE-GUIDED-DRUG DELIVERY | FS 02 (MOZART 1 (GROUND FLOOR))

Roel Deckers (Utrecht, Netherlands); **Alexandros Marios Sofias** (Aachen, Germany)

Drug delivery to solid tumors, and consequently the therapeutic efficacy of anti-cancer drugs, are influenced by multiple pathophysiological and biochemical processes taking place at various spatial and temporal scales. **Mathematical modeling** allows for a well-controlled study on the individual and combined effects of a wide range of parameters on drug transport and therapeutic efficacy, which would not be possible or economically viable through experimental means. Non-invasive (molecular) imaging allows for **quantification of tumor characteristics at the physiological, cellular, and molecular level**, at multiple time-points in 3D. While using imaging data in statistical and informatics-driven approaches has launched the fields of radiomics and radiogenomics, such data are only beginning to be incorporated into mathematical **models of drug transport and treatment response**.

This focus session will give an overview of different approaches for mathematical modeling of drug delivery and how (molecular) imaging data can provide essential input for these mathematical models in the preclinical and clinical setting.

12:00 INTRODUCTION TO MATHEMATICAL MODELING IN IMAGE-GUIDED-DRUG DELIVERY

Johanna Blee

12:05 IMAGING-BASED DIGITAL TWINS FOR BREAST CANCER

Thomas Yankeelov[1, 2], Chengyue Wu[1], David Hormuth II[1], Ernesto Lima[1], Guillermo Lorenzo[3]

[1] The University of Texas at Austinn, Oden Institute for Computational and Engineering Sciences, AUSTIN, United States of America

[2] MD Anderson Cancer Center, Imaging Physics, Houston, United States of America

[3] University of Pavia, Civil Engineering and Architecture, Pavia, Italy

12:35 COMBINING MATHEMATICAL MODELLING, MACHINE LEARNING AND BIOMEDICAL IMAGING TO BETTER UNDERSTAND DRUG DELIVERY TO SOLID TUMOURS

Simon Walker-Samuel[1], Rebecca Shipley[1]

[1] Univeristy College London, Centre for Computational Medicine, London, United Kingdom

13:05 *IN SILICO* MODELLING FOR THE DEVELOPMENT OF NEW DISEASE DIAGNOSTICS AND TREATMENTS

Johanna Blee[1, 2], Natalie Morris[1], Sabine Hauert[1]

[1] University of Bristol, Engineering Mathematics, Bristol, United Kingdom

[2] University of Bristol, Biological Sciences, Bristol, United Kingdom

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12:00 – 13:30

PHARMA'S PERSPECTIVE ON THE ROLE OF IMAGING IN IMMUNE-ONCOLOGY | FS 03 (MOZART 2 (GROUND FLOOR))

Erik Aarntzen (Nijmegen, Netherlands); **Tim Witney** (London, UK)

Moderator: Tim Witney, London

The vast majority of molecular **imaging tools to interrogate the immune system** are developed in the academia, but academic involvement in drug development is limited. **Pharmaceutical industries are the main drivers in immune-oncology drug development**, but molecular imaging is rarely integrated in their development programs.

Why do pharmaceutical industries leave the potential of molecular imaging largely untapped?

This Focus Session aims to facilitate the **interaction between 'developers' and 'users'** for a better understanding of each other's needs and expectations. Three provocative statements will guide the lectures and panel discussion, as well as persuading the audience to participate:

- **Statement 1**: within 5 years molecular imaging has replaced histology as gold standard to assess the immunogenicity of tumors
- **Statement 2**: early application of imaging in drug development programs can shorten the time-to-approval by 50% and increase return-on-investment by 50%
- **Statement 3**: what roles suit immune imaging best:
  A) predict efficacy,
  B) predict toxicity,
  C) early response monitoring or
  D) define end-of-treatment?

Followed by round-table discussion.

12:00 INTRODUCTION BY THE MODERATOR

Tim Witney

12:05 THE KEY STEPS REQUIRED IN PET TRACER DEVELOPMENT TO ENSURE USE AND ACCEPTANCE FROM PHARMACEUTICAL COMPANIES AND CLINICIANS

Ian Wilson[1]

[1] ImaginAb Inc, Inglewood, California, United States of America

12:20 THE ROLE OF IMAGING IN IMMUNE-ONCOLOGY – A CELL-THERAPY BASED PERSPECTIVE

Daniel Schäfer[1]

[1] Miltenyi Biotec B.V. & Co. KG, R&D, Bergisch Gladbach, Germany

12:35 A TALE OF IMAGING IDEAS, CHALLENGES, REALITIES AND HOPES – A VIEW FROM INDUSTRY

Miguel Murillo[1]

[1] GSK, Oncology Clinical Imaging, Stevenage, United Kingdom

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12:00 – 13:30

MULTISCALE IMAGING OF ORGAN-SPECIFIC INFLAMMATION | FS 04 (TRAKL 3RD FLOOR (MIRRORED IN PARACELSUS 2ND FLOOR))

Michael Schäfers (Muenster, Germany); **Friedemann Kiefer** (Muenster, Germany)

This session is co-organized by **"inSight – Multiscale Imaging of Organ-specific Inflammation"** - a Collaborative Research Centre based at the University Münster, Germany www.uni-muenster.de/CRC-inSight/.

This session will deal with how the body regulates inflammation in different organs and discuss how to develop specific multisale imaging methodologies that brings together information from single cells to entire organisms.

12:00 MULTISCALE IMAGING OF ORGAN-SPECIFIC INFLAMMATION

Michael Schäfers[1, 2], Friedemann Kiefer[1, 2]

[1] Westfälische Wilhelms-Universität Münster, Department of Nuclear Medicine,, Muenster, Germany

[2] Westfälische Wilhelms-Universität Münster, European Institute for Molecular Imaging, Münster, Germany

12:15 TAKING CONTROL OF INNATE IMMUNITY TO MANAGE CARDIOVASCULAR DISEASE

Willem Mulder[1, 2]

[1] Radboud University Medical Center, Department of Internal Medicine, Nijmegen, Netherlands

[2] Eindhoven University of Technology, Department of Biomedical Engineering, Eindhoven, Netherlands

12:45 IMAGING NEW LABELS AND BIOSENSORS USING 'SMART' PROBES AND PSF ENGINEERING

Peter Dedecker

12:00 – 13:30

GENETICALLY ENCODED TOOLS | FS 05 (DOPPLER (4TH FLOOR))

Daniele Bertoglio (Antwerp, Belgium); **Andre Stiel** (Munich, Germany)

Genetically encoded imaging tools such as labels or biosensors are an indispensable tool of life-science and biomedical research imaging. They allow cell specific, unperturbed and longitudinal measurements and are thus a key to true *in vivo* imaging of research animals. While such agents have been a hallmark of **fluorescence** techniques since the advent of the green fluorescent protein (GFP), also for other imaging modalities such as **ultrasound** and **MRI** ingenious ways have been conceived how to provide genetically encoded contrast.

In this session we give a state-of-the art overview, from newest fluorescence labels to gas filled vesicles for ultrasound.

12:00 FROM SEASIDE TO BEDSIDE: HOW ENGINEERING LIGHT EMITTING PROTEINS FROM MARINE ORGANISMS CAN IMPROVE MODERN MEDICINE

Assaf Gilad[1, 2]

[1] Michigan State University, Michigan, United States of America

[2] Central Michigan University College of Medicine, Michigan, United States of America

12:20 FROM ACOUSTIC BIOMOLECULES TO ULTRASOUND IMAGING OF GENE EXPRESSION

David Maresca[1]

[1] Delft University of Technology, Imaging Physics, Delft, Netherlands

12:40 „MULTICOLOUR" MRI REPORTER GENES: DESIGN, IMPLEMENTATION AND REMAINING CHALLENGES

Amnon Bar-Shir[1]

[1] Weizmann Institute of Science, Rehovoy, Israel

13:00 [^{18}F]*P*FBC IS A COVALENT CLIPTAG RADIOTRACER FOR PET REPORTER GENE IMAGING OF VIRAL GENE TRANSFER IN THE MURINE BRAIN

Sophie Stotz[1, 2], Gregory Bowden[1, 2], Sabrina Buss[1], Gina Dunkel[1], Bettina Weigelin[1, 2], Kristina Herfert[1], Bernd Pichler[1, 2], Andreas Maurer[1, 2]

[1] Eberhard Karls University, Werner Siemens Imaging Center, Department of Preclinical Imaging and Radiopharmacy, Tuebingen, Germany

[2] Eberhard Karls University, Cluster of Excellence iFIT (EXC 2180) "Image guided and functionally instructed tumor therapies", Tuebingen, Germany

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13:45 – 14:15

MEMBERS' ASSEMBLY | MA2023 (DOPPLER (4TH FLOOR))

14:30 – 16:00

TUMOUR MICROENVIRONMENT | PS 21 (EUROPA SAAL (2ND FLOOR))

Nick Devoogdt (Brussels, Belgium); **Cristina Barca** (Hannover, Germany)

14:30 INTRODUCTORY LECTURE

Bénédicte Jordan

14:50 THE DEVELOPMENT OF RADIOLABELED NANOBODIES AGAINST THE NEXT-GENERATION IMMUNE CHECKPOINT TIGIT FOR NON-INVASIVE IMMUNE PHENOTYPING OF TUMORS

Katty Zeven[1], Timo W. De Groof[1], Robin Maximilian Awad[2], Wout de Mey[2], Thomas Ertveldt[2], Hannelore Ceuppens[2], Kevin De Jonghe[1], Geert Raes[4, 5, 6], Marleen Keyaerts[3], Karine Breckpot[2], Nick Devoogdt[1]

[1] Vrije Universiteit Brussel, Department of Medical imaging, Brussel, Belgium

[2] Vrije Universiteit Brussel, Laboratory for Molecular and Cellular Therapy, Brussel, Belgium

[3] UZ Brussel, Nuclear medicine department, Brussel, Belgium

[4] Vrije Universiteit Brussel, Laboratory of Cellular and Molecular Immunology, Brussel, Belgium

[5] VIB, Laboratory of Myeloid cell Immunology, Brussel, Belgium

[6] VIB, Laboratory of Dendritic Cell Biology and Cancer Immunotherapy, Brussel, Belgium

15:02 LONGITUDINAL MONITORING OF T CELL ACTIVATION KINETICS VISUALIZED BY OX40- AND CD69-IMMUNOPET DURING COMBINED CANCER IMMUNOTHERAPY IN TUMOR BEARING MICE

Simone Blaess[1], Israt Alam[2], Stefania Pezzana[1], Bredi Tako[1], Claudia Pietura[1], Kilian Wistuba-Hamprecht[4, 5, 6], Dominik Seyfried[1, 5], Johannes Kinzler[1], Andreas Maurer[1, 7], Bernd Pichler[1, 5, 7], Manfred Kneilling[1, 3, 7], Dominik Sonanini[1, 8]

[1] University Hospital Tübingen, Werner Siemens Imaging Center, Department of Preclinical Imaging and Radiopharmacy, Tübingen, Germany

[2] Stanford University, Molecular Imaging Program at Stanford (MIPS), Department of Radiology, Stanford, United States of America

[3] University Hospital Tübingen, Department of Dermatology, Tübingen, Germany

[4] University of Tübingen, Department of Immunology, Institute for Cell Biology, Tübingen, Germany

[5] German Cancer Consortium (DKTK) and German Cancer Research Center (DKFZ) partner site Tübingen, Tübingen, Germany

[6] University Hospital Tübingen, Section for Clinical Bioinformatics, Department of Internal Medicine I, Tübingen, Germany

[7] University of Tübingen, Cluster of Excellence iFIT (EXC2180), Tübingen, Germany

[8] University of Tübingen, Department of Medical Oncology and Pneumology, Tübingen, Germany

15:14 UBIQUITIN-BASED SCAFFOLD TECHNOLOGY TO TARGET EDB FIBRONECTIN IN THE TUMOR MICROENVIRONMENT

Cecile Philippe[1], Michaela Schlederer[2], Ulrich Haupts[3], Eva Bosse-Doenecke[3], Victoria Weissenboeck[1], Marcus Hacker[1], Lukas Kenner[2, 4, 5]

[1] Medical University of Vienna, Department of Biomedical Imaging and Image-Guided Therapy, Division of Nuclear Medicine, Vienna, Austria

[2] Medical University of Vienna, Department of Pathology, Vienna, Austria

[3] Navigo Proteins GmbH, Halle (Saale), Germany

[4] Medical University of Vienna, Christian Doppler Labor for Applied Metabolomics, Vienna, Austria

[5] Center for Biomarker Research in Medicine, Graz, Austria

15:26 THE EFFECT OF RADIOTHERAPY COMBINED WITH DRUGS ON THE GLIOMA MICROENVIRONMENT EVALUATED USING PET IMAGING AND SINGLE-CELL RNA SEQUENCING

Silvia Valtorta[1, 2, 3], Silvia Granata[2, 4], Paolo Rainone[2, 4], Gloria Bertoli[1, 3], Sergio Todde[1, 4], Angela Coliva[2], Sara Belloli[1, 2, 3], Antonello Spinelli[5], Stefano de Pretis[6], Santo Diprima[6], Flavia Zerbetto[7], Stefano Villa[7], Nadia Di Muzio[7], Rosa Maria Moresco[1, 2, 4]

[1] CNR, Institute of Molecular Bioimaging and Physiology, Segrate, Italy

[2] San Raffaele Scientific Institute (IRCCS), Department of Nuclear Medicine, Milan, Italy

[3] National Biodiversity Future Center, Palermo, Italy

[4] University of Milano — Bicocca, Department of Medicine and Surgery and Tecnomed Foundation, Monza, Italy

[5] San Raffaele Scientific Institute (IRCCS), Experimental Imaging Centre, Milan, Italy

[6] San Raffaele Scientific Institute (IRCCS), Center for Omics Sciences, Milan, Italy

[7] San Raffaele Scientific Institute (IRCCS), Department of Radiation Oncology, Milan, Italy

15:38 IDENTIFYING VASCULOGENIC MIMICRY AND THE EFFECT OF ANTI-VASCULAR THERAPY WITH PHOTOACOUSTICS

Mariam-Eleni Oraiopoulou[1, 2], Thomas Else[1, 2], Thierry Lefebvre[1, 2], Eleftheria Tzamali[3], Dominique-Laurent Couturier[2, 4], Cara Brodie[2], Ian Cannell[2], Sarah Aitken[4, 2, 5], Gregory Hannon[2], Vangelis Sakkalis[3], Sarah Bohndiek[1, 2]

[1] University of Cambridge, Department of Physics, Cambridge, United Kingdom

[2] University of Cambridge, Cancer Research UK Cambridge Institute, Cambridge, United Kingdom

[3] Foundation for Research and Technology - Hellas, Institute of Computer Science, Heraklion, Greece

[4] University of Cambridge, Medical Research Council, Cambridge, United Kingdom

[5] Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom

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14:30 – 16:00

MR & HYPERPOLARIZATION TECHNOLOGIES | PS 22 (MOZART 1 (GROUND FLOOR))

Myriam Chaumeil (San Fransisco, USA); **Anaïs Choffart** (Tuebingen, Germany)

14:30 INTRODUCTORY LECTURE

Cornelius Faber

14:50 HYPERPOLARIZED [1-^{13}C]PYRUVATE AND [^{13}C]UREA DETECT IMMUNOMODULATORY RESPONSES TO DIMETHYL FUMARATE AND FINGOLIMOD THERAPIES IN A MULTIPLE SCLEROSIS MODEL

Caroline Guglielmetti[1, 2], Christian Cordano[3], Chloe Najac[4], Ari Green[3], Myriam Chaumeil[1, 2]

[1] University of California San Francisco, Department of Physical Therapy and Rehabilitation Science, San Francisco, United States of America

[2] University of California San Francisco, Department of Radiology and Biomedical Imaging, San Francisco, United States of America

[3] University of California San Francisco, Department of Neurology, San Francisco, United States of America

[4] Leiden University Medical Center, Department of Radiology, C.J. Gorter MRI Center, Leiden, Netherlands

15:02 HYPERPOLARIZED Z-OMPD ALLOWS QUANTITATIVE ASSESSMENT OF KIDNEY FUNCTION

Pascal Wodtke[1], Martin Grashei[1], Jason Skinner[1], Sandra Sühnel[1], Nadine Setzer[1], Christian Hundshammer[1], Franz Schilling[1]

[1] Technical University of Munich, Department of Nuclear Medicine, School of Medicine, Munich, Germany

15:14 DISTINGUISHING RADIATION NECROSIS VS. RECURRENT BRAIN TUMOR: ^{1}H MTR AND ^{2}H MRS

Joel Garbow[1], KyuHo Song[1], Xia Ge[1], John Engelbach[1], Keith Rich[1], Joseph Ackerman[1]

[1] Washington University in St. Louis, Saint Louis, United States of America

15:26 DEVELOPMENT OF OXYGEN ENHANCED ELECTRON PARAMAGNETIC RESONANCE IMAGING FOR EVALUATIONS OF RADIOTHERAPY IN PRECLINICAL TUMOR MODELS

Tianzhe Li[1, 2], Jorge de la Cerda[1], Fredrick Schuler[1], Xiaofei Liang[1], **Mark Pagel**[1]

[1] University of Texas MD Anderson Cancer Center, Department of Cancer Systems Imaging, Houston, United States of America

[2] University of Texas Health Science Center, Houston, United States of America

15:38 VALIDATION OF IOPAMIDOL-BASED MRI-CEST IMAGING TO DETECT AND VISUALIZE TUMOR AREA IN GLIOBLASTOMA MURINE MODELS

Elena Botto[2], **Antonella Carella**[1], Daisy Villano[2], Riccardo Gambino[2], Francesco Gammaraccio[2], Alessia Corrado[1], Elisa Pirotta[1], Feriel Ramdhane[1], Dario Longo[1]

[1] National Research Council of Italy (CNR), 1Institute of Biostructures and Bioimaging (IBB), Turin, Italy

[2] University of Torino, 2Department of Molecular Biotechnology and Health Sciences, Turin, Italy

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14:30 – 16:00

BRAIN METABOLISM, MICROSTRUCTURE & ANATOMY | PS 23 (MOZART 2 (GROUND FLOOR))

Ruiqing Ni (Zurich, Switzerland); **Nicholas Vidas-Guscic** (Antwerp, Belgium)

14:30 INTRODUCTORY LECTURE

Abraham Martin

14:50 MULTIMODAL IMAGING EVALUATION OF THE INFLAMMATORY RESPONSE FOLLOWING EXPERIMENTAL SUBARACHNOID HAEMORRHAGE

Ana Joya[1, 2], Maider Garbizu[1, 2], Sandra Plaza-García[2], Leyre Iglesias[1], Unai Cossío[2], Vanessa Gómez-Vallejo[2], Daniel Padró[2], Pedro Ramos-Cabrer[2], Jordi Llop[2, 3], Abraham Martín[1, 4]

[1] Achucarro Basque Center for Neuroscience, Leioa, Spain

[2] Molecular Imaging Unit, CIC biomaGUNE, Basque Research and Technology Alliance (BRTA), San Sebastian, Spain

[3] Centro de Investigación Biomédica en Red - Enfermedades Respiratorias, CIBERES, Madrid, Spain

[4] Ikerbasque Basque Foundation for Science, Bilbao, Spain

15:02 ACOUSTIC TUMOR PAINT: A NONINVASIVE ULTRASOUND METHOD FOR BRAIN TUMOR DIAGNOSIS

Claire Rabut[1], Pierina Barturen[1], Dina Malounda[1], Mikhail Shapiro[1, 2]

[1] California Institute of Technology, Division of Chemistry and Chemical Engineering, Pasadena, United States of America

[2] Howard Hughes Medical Institute, Pasadena, United States of America

15:14 EFFECT OF MANNITOL-INDUCED OSMOTIC STRESS ON BRAIN METABOLITES AND MACROMOLECULES

Anthony Tessier[1, 2], Anthony Ruze[1], Isabelle Varlet[1], Armelle Lokossou[1], Monique Bernard[1], Yann le Fur[1], Teodora-Adriana Perles-Barbacaru[1], Angele Viola[1]

[1] Aix-Marseille Univ, CNRS, CRMBM UMR 7339, Faculté des Sciences Médicales et Paramédicales la Timone, Marseille, France

[2] Service de Santé des Armées, Hôpital Saint-Anne, Toulon, France

15:26 BRAIN-INSULT INDUCED GLUCOSE HYPOMETABOLISM DURING EPILEPTOGENESIS PREDICTS SEIZURE FREQUENCY IN CHRONIC EPILEPTIC RATS

Pablo Bascuñana[1], Ina Jahreis[1, 3], Bettina Wolf[1, 3], Tobias Ross[1], Marion Bankstahl[2, 3], Jens Bankstahl[1]

[1] Hannover Medical School, Nuclear Medicine, Hannover, Germany

[2] Hannover Medical School, Laboratory Animal Science, Hannover, Germany

[3] Hannover Veterinary Medicine School, Pharmacology, Toxicology and Pharmacy, Hannover, Germany

15:38 MAPPING ALDEHYDES FOR EARLY DIAGNOSIS OF CONCUSSION *VIA* MOLECULAR MRI

Alexia Kirby[1, 2], Cian Ward[1], Nicholas Calvert[2, 3], Ashwin Sharma[1], Ryan Daniel[1], Joseph Leung[1, 4], Mojmir Suchy[2, 3], Cassandra Donatelli[1], Jing Wang[4, 5], Emily Standen[1], Adam Shuhendler[1, 2, 3]

[1] University of Ottawa, Department of Biology, Ottawa, Canada

[2] University of Ottawa, Heart Insititute, Ottawa, Canada

[3] University of Ottawa, Department of Chemistry and Biomolecular Sciences, Ottawa, Canada

[4] University of Ottawa, Regenerative Medicine Program, Ottawa Hospital Research Institute, Ottawa, Canada

[5] University of Ottawa, Department of Cellular and Molecular Medicine, Brian and Mind Research Institute, Ottawa, Canada

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14:30 – 16:00

INTERVENTIONAL IMAGING | PS 24 (TRAKL 3RD FLOOR (MIRRORED IN PARACELSUS 2ND FLOOR))

Pieter van der Zaag (Groningen, Netherlands); **Tessa Buckle** (Leidem, Netherlands)

14:30 INTRODUCTORY LECTURE

Stephan Rogalla

14:50 DETECTION BY FLUORESCENCE OF PITUITARY NEUROENDOCRINE TUMOR (PITNET) TISSUE DURING ENDOSCOPIC TRANSSPHENOIDAL SURGERY USING BEVACIZUMAB-800CW: A QUANTITATIVE DOSE-FINDING TRIAL

Iris Schmidt[1], Rob Vergeer[2], Mark Postma[3], Gerrit van den Berg[3], Andrea Sterkenburg[1], Astrid Korsten-Meijer[4], Robert Feijen[4], Schelto Kruijff[5], Marc van Dijk[2], Wilfred den Dunnen[6], Andre van Beek[3], Dominic Robinson[7], Wouter Nagengast[1], Jos Kuijlen[2]

[1] University Medical Center Groningen, Department of gastroenterology and hepatology, Groningen, Netherlands

[2] University Medical Center Groningen, Department of Neurosurgery, Groningen, Netherlands

[3] University Medical Center Groningen, Department of Endocrinology, Groningen, Netherlands

[4] University Medical Center Groningen, Department of Otorhinolaryngology-Head and Neck Surgery, Groningen, Netherlands

[5] University Medical Center Groningen, Department of Surgical Oncology, Groningen, Netherlands

[6] University Medical Center Groningen, Department of Pathology, Groningen, Netherlands

[7] Erasmus Medical Center, Department of Otorhinolaryngology and Head and Neck Surgery, Rotterdam, Netherlands

15:02 INTRAOPERATIVE DIFFERENTIATION BETWEEN LYMPHATIC DRAINAGE PATTERNS IN PROSTATE CANCER USING MULTI-COLOR FLUORESCENCE

Anne-Claire Berrens[1, 2], Tessa Buckle[2, 1], Matthias van Oosterom[2, 1], Fijs van Leeuwen[2, 1], Henk van der Poel[1, 3]

[1] Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital, Urology, Amsterdam, Netherlands

[2] Leiden University Medical Center, Radiology/Interventional Molecular Imaging Laboratory, Leiden, Netherlands

[3] Amsterdam University Medical Center, Urology, Amsterdam, Netherlands

15:14 IN VIVO OPTICAL IMAGING OF GLIOMA USING A NOVEL UPAR-TARGETING FLUORESCENT SINGLE-DOMAIN ANTIBODY

Lukasz Mateusiak[1], Sam Floru[1], Timo De Grof[1], Noemi Declerck[1], Janne Wouters[1], Simone Janssen[1, 4], Pieterjan Debie[1], Katty Zeven[1], Cecile Vincke[2], Janik Puttemans[1], Marcus Stroet[1], Karine Breckpot[3], Nick Devoogdt[1], Sophie Hernot[1]

[1] Vrije Universiteit Brussel, Laboratory of In Vivo Cellular and Molecular Imaging, Brussels, Belgium

[2] Vrije Universiteit Brussel, Laboratory of Cellular and Molecular Immunology, Brussels, Belgium

[3] Vrije Universiteit Brussel, Laboratory of Molecular and Cellular Therapy, Brussels, Belgium

[4] Ghent University, Small Animal Department, Merelbeke, Belgium

15:26 INDOCYANINE GREEN-LOADED FERRITIN NANOPARTICLES FOR INTRAOPERATIVE DETECTION OF CANCER TISSUE

Marta Sevieri[1], Serena Mazzucchelli[1], Fabio Corsi[2]

[1] University of Milan, Department of Biomedical and Clinical Sciences, Milan, Italy

[2] Istituti Clinici Scientifici Maugeri IRCCS, Breast Unit, Pavia, Italy

15:38 BACKGROUND-FREE MOLECULAR CONTRAST IN FLUORESCENCE SURGICAL ONCOLOGY IMAGING WITH PROTOPORPHYRIN IX

Brian Pogue[1, 2], Arthur Petusseau[2], Petr Bruza[2], Marien Ochoa[1], Matthew Reed[1]

[1] University of Wisconsin-Madison - Madison, WI, Department of Medical Physics, Madison WI, Wisconsin, United States of America

[2] Dartmouth College, Thayer School of Engineering, Hanover NH, United States of America

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14:30 – 16:00

RADIOMICS, MACHINE LEARNING & AI | PS 25 (DOPPLER (4TH FLOOR))

Pablo Aguiar (Santiago de Compostela, Spain); **Florence M. Muller** (Ghent, Belgium)

14:30 INTRODUCTORY LECTURE

Tom Yankeelov

14:50 COMBINING CLASSICAL RADIOMICS AND AUTOENCODERS FOR BREAST CANCER CLASSIFICATION IN ULTRASOUND IMAGES

Zuzanna Magnuska[1], Rijo Roy[1, 6], Moritz Palmowski[2], Katja Krauß[3], Elmar Stickeler[3, 4], Volkmar Schulz[1, 5, 6], Fabian Kießling[1, 4, 6]

[1] RWTH Aachen University, Institute for Experimental Molecular Imaging, Aachne, Germany

[2] Radiologie Baden-Baden, Baden-Baden, Germany

[3] University Clinic Aachen, Department of Obstetrics and Gynecology, Aachen, Germany

[4] University Clinic Aachen, Comprehensive Diagnostic Center Aachen, Aachen, Germany

[5] RWTH Aachen University, Physics Institute III B, Aachen, Germany

[6] Fraunhofer Institute for Digital Medicine MEVIS, Bremen, Germany

15:02 GENERALISABLE AI SEGMENTATION OF 3D VASCULATURE: TWO-STEP TRAINING APPROACH

Natalie Holroyd[1], Claire Walsh[2], Emmeline Brown[1], Simon Walker-Samuel[1]

[1] UCL, Centre for Advanced Biomedical Imaging, London, United Kingdom

[2] UCL, Mechanical Engineering, London, United Kingdom

15:14 UNSUPERVISED SEGMENTATION OF 3D MICROVASCULAR PHOTOACOUSTIC IMAGES USING DEEP LEARNING

Paul Sweeney[1, 2], Lina Hacker[1, 2], Thierry Lefebvre[1, 2], Janek Gröhl[1, 2], Emma Brown[1, 2], Sarah Bohndiek[1, 2]

[1] University of Cambridge, Cancer Research UK Cambridge Institute, Cambridge, United Kingdom

[2] University of Cambridge, Department of Physics, Cambridge, United Kingdom

15:26 DEEP LEARNING FRAMEWORK IMPROVES WOUND HISTOLOGY ANALYSIS BY ACCURATELY SEGMENTING MULTIPLE IMPORTANT TISSUE TYPES

Connor Robinson[1], Claudia Lindner[2], Timothy Cootes[2], Svitlana Kurinna[1]

[1] University of Manchester, School of Biological Sciences, Division of Cell Matrix Biology and Regenerative Medicine, Faculty of Biology, Medicine and Health, Manchester, United Kingdom

[2] University of Manchester, School of Health Sciences, Division of Imaging, Informatics and Data Sciences, Faculty of Biology, Medicine and Health, Manchester, United Kingdom

15:38 ROBUSTNESS OF CNN PREDICTIONS TO IMAGE RECONSTRUCTION PROTOCOLS IN ^{18}F-FDG PET MAXIMUM INTENSITY PROJECTIONS OF DIFFUSE LARGE B-CELL LYMPHOMA PATIENTS

Maria Ferrandez[1, 2], Sandeep Golla[1, 2], Jakoba Eertink[2, 3], Bart de Vries[1, 2], Sanne Wiegers[1, 2], Gerben Zwezerijnen[1, 2], Simone Pieplenbosch[2, 3], Henrica de Vet[2, 3], Josée Zijlstra[2, 3], Ronald Boellaard[1, 2]

[1] Cancer Center Amsterdam, Department of Radiology and Nuclear Medicine, Amsterdam UMC, Vrije Universiteit Amsterdam, Amsterdam, Netherlands

[2] Cancer Center Amsterdam, Imaging and Biomarkers, Amsterdam, Netherlands

[3] Cancer Center Amsterdam, Department of Hematology, Amsterdam UMC, Vrije Universiteit Amsterdam, Amsterdam, Netherlands

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16:30 – 17:15

ESMI AWARD 2023: PETER VAN ZIJL, BALTIMORE | MOLECULAR IMAGING USING THE WATER SIGNAL IN MRI | PL 05 (EUROPA SAAL (ENTRANCE 2ND FLOOR))

Annemie Van der Linden (UAntwerpen, Wilrijk, Belgium); **Kevin Brindle** (Cambridge, UK)

ESMI Award Winner 2023 - CONGRATULATIONS!

Peter has been making major contributions to the field of magnetic resonance imaging and spectroscopy for more than 30 years.

He is distinguished for his contributions to the development of localized spectroscopy and spectroscopic imaging, the study of diffusion anisotropy and the development of diffusion tensor imaging and fibre tracking, understanding of the mechanisms underlying the BOLD effect and most recently for his work in the field of chemical exchange saturation transfer (CEST), where he conceived the idea of amide proton transfer (APT) technology. APT is being used in the clinic to grade tumours, distinguish recurrent tumour from treatment necrosis and to predict survival of glioma patients.

16:30 MOLECULAR IMAGING USING THE WATER SIGNAL IN MRI

Peter van Zijl[1]

[1] Johns Hopkins University School of Medicine, Department of Radiology, Kennedy Krieger Institute, F.M. Kirby Research Center, Baltimore, United States of America

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17:30 – 18:30

DIVE DEEP INTO YOUR SAMPLE – THE MILTENYI 3D IMAGING WORKFLOW | IND 01 (EUROPA SAAL (2ND FLOOR))

This session is organized by Miltenyi Biotec and open to all EMIM attendees.

17:30 DIVE DEEP INTO YOUR SAMPLE – THE MILTENYI 3D IMAGING WORKFLOW

Guruchandar Arulmozhivarman[1], Afshin Khalili[1], Alexander Gruhl[1]

[1] Miltenyi Biotec B.V. & Co. KG, Imaging, Bergisch Gladbach, Germany

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17:30 – 18:30

PRECISE QUANTITATION OF YOUR OPTICAL PROBE USING 360° 3D IMAGING FROM TRIFOIL | IND 02 (MOZART 1 (GROUND FLOOR))

Aaron McCormack (TriFoil Imaging); **Austin Moy** (TriFoil Imaging)

This session is organized by Trifoil Imaging and open to all EMIM attendees.

Optical imaging is normally used as a screening tool and in 2D. It is an excellent way to identify presence of a target and approximate trends over time. However, when precise quantitation is required, expensive and destructive radionuclear or ex-vivo methods are used. Having pioneered the world's only true 3D 360° optical/CT system (the InSyTe FLECT/CT), TriFoil has worked with Harvard MGH to demonstrate precise quantitation of a novel tumor-targeting probe as a % of injected dose (%ID), as published recently in Advanced Materials.

Join paper co-author[1], Austin Moy, and TriFoil Imaging CEO Aaron McCormack to see how this work opens a new frontier in non-invasive, non-destructive, non-radionuclear imaging and quantitation at the full depth of the mouse.

TriFoil Imaging will also be announcing the creation of a new European Centre of Excellence for 3D Imaging with the Nano Health & Optical Imaging team at KU Leuven, led by Prof. Stefaan Soenen.

[1] Kang et al, Tumor-Associated Immune-Cell-Mediated Tumor-Targeting Mechanism with NIR-II Fluorescence Imaging. Adv. Mater. 2022, 34, 2106500. https://doi.org/10.1002/adma.202106500

17:30 – 18:30

GETTING THE MOST OUT OF YOUR IMAGE DATA WITH EURO-BIOIMAGING | INF 01 (MOZART 2 (GROUND FLOOR))

Claudia Pfander (Heidelberg, Germany); **Giuseppe Digilio** (Alessandria, Italy)

INF Sessions are organized by collaborative **infrastructural** projects.

Euro-BioImaging is a research infrastructure that offers open access to imaging technologies, training and data services in biological and biomedical imaging.

17:30 GETTING THE MOST OUT OF YOUR IMAGE DATA WITH EURO-BIOIMAGING

Linda Chaabane[1], Dario Longo[2], Aastha Mathur[3], Katja Bühler[4], Peter Gordebeke[5], Claudia Pfander[6], Giuseppe Digilio[1]

[1] Euro-BioImaging, MedHub, Turin, Italy

[2] CNR, IBB, Turin, Italy

[3] Euro-BioImaging, BioHub, EMBL, Heidelberg, Germany

[4] VRVis, Wien, Austria

[5] EIBIR, Wien, Austria

[6] Euro-BioImaging, Industry Board, Heidelberg, Germany

17:30 – 18:30

ADDRESSING CHALLENGES IN RADIATION ONCOLOGY BY RADNET | INF 02 (TRAKL 3RD FLOOR (MIRRORED IN PARACELSUS 2ND FLOOR))

Algernon Bloom (Glasgow, UK); **David Lewis** (Glasgow, UK)

INF Sessions are organized by collaborative **infrastructural** projects.

RadNet is a network of centres of excellence and state-of-the-art facilities working with the research community to tackle the major challenges in **radiobiology** and **radiation oncology**.

RadNet brings together researchers across **discovery, translational and clinical research** to support further **growth of the radiation research community** through national and international multidisciplinary collaboration, and by **developing the future leaders** of the field.

The RadNet Molecular Imaging and Radiotherapy Working Group are collaborating on projects **personalising radiotherapy, investigating the evolution of radiotherapy resistance** and developing novel preclinical **adaptive therapy and real-time treatment planning solutions,** all of which will be essential to deliver patient impact in this area.

We believe that by working together we can have a greater impact collectively than individually, improving the efficiency of molecular imaging research. Join us to hear more about our Working Group projects and discover how to join our fun and collaborative network.

PROGRAMME & SPEAKERS

- David Lewis, Glasgow | **Introduction to CRUK RadNet and the Molecular Imaging and Radiotherapy Working Group**

- Shashvat Verma, Cambridge | **MIGRATES: Multi-Site Implementation of a System Agnostic Cradle for Enhanced Preclinical Radiotherapy Planning**
- Markus Aswendt, Cologne | **In Vivo and Ex Vivo Multimodal Image Registration: Novel Solutions for Old Problems**
- Bram Carlier, Leuven | **Radiation Sensing Using Phase-Change Ultrasound Contrast Agents: From idea to in vivo Proof-of-Concept**

Abstracts will follow.

17:30 INTRODUCTION TO THE MOLECULAR IMAGING AND RADIOTHERAPY WORKING GROUP

David Lewis

17:40 MIGRATES: MULTI-SITE IMPLEMENTATION OF A SYSTEM AGNOSTIC CRADLE FOR ENHANCED PRECLINICAL RADIOTHERAPY PLANNING

Shashvat Verma[1], Dominick McIntyre[1], Thierry Lefebvre[2, 1], Jennifer Lewis[1], David Lewis[3], Sean Smart[4], Sarah Bohndiek[2, 1]

[1] Cancer Research UK, Cambridge Institute, Cambridge, United Kingdom

[2] University of Cambridge, Department of Physics, Cambridge, United Kingdom

[3] Cancer Research UK, Beatson Institute, Glasgow, United Kingdom

[4] University of Oxford, Wellcome Centre for Integrative Neuroimaging, Oxford, United Kingdom

17:55 IN VIVO AND EX VIVO MULTIMODAL IMAGE REGISTRATION: NOVEL SOLUTIONS FOR OLD PROBLEMS

Markus Aswendt[1]

[1] University of Cologne, Department of Neurology, Cologne, Germany

18:10 RADIATION SENSING USING PHASE-CHANGE ULTRASOUND CONTRAST AGENTS: FROM INITIAL IDEA TO A FIRST IN VIVO PROOF-OF-CONCEPT

Bram Carlier[1, 2, 3], Gonzalo Collado-Lara[4], Sophie Heymans[5, 6], Yosra Toumia[7], Luigi Musetta[2, 3], Marcus Ingram[6], Emiliano D'Agostino[8], Gaio Paradossi[7], Hendrik Vos[4], Edmond Sterpin[1], Koen Van Den Abeele[5], Jan D'hooge[6], Uwe Himmelreich[2, 3]

[1] KU Leuven, Department of Oncology, Leuven, Belgium

[2] KU Leuven, Department of Imaging & Pathology, Leuven, Belgium

[3] KU Leuven, Molecular Small Animal Imaging Center (MoSAIC), Leuven, Belgium

[4] Erasmus MC University Medical Center, Department of Cardiology, Rotterdam, Netherlands

[5] KU Leuven, Department of Physics, Kortrijk, Belgium

[6] KU Leuven, Department of Cardiovascular Sciences, Leuven, Belgium

[7] University of Rome Tor Vergata, Department of Chemical Science and Technologies, Rome, Italy

[8] Easics NV, Leuven, Belgium

17:30 – 18:30

AMICE | ADVANCED MULTI-MODAL IMAGING CENTERS - A DUTCH COLLABORATIVE MODEL | INF 03 (DOPPLER (4TH FLOOR))

Joanes Grandjean (Nijmegen, Netherlands); **Mangala Srinivas** (Wageningen, Netherlands)

INF Sessions are organized by collaborative **infrastructural** projects.

AMICE (Advanced Multi-modal Imaging CEnters) is a Dutch national platform with state-of-the-art preclinical molecular imaging equipment and expertise, in which preclinical imaging centers participate for full-scale, collective, and synergistic collaboration within and between centers.

The concept is not limited to The Netherlands and can serve as an excellent example: AMICE aims to reinforce the molecular imaging infrastructure by coordinating grant applications of imaging equipment and build a shared network of expertise, people, equipment, and data.

17:30 INTRODUCING AMICE: WHAT DO WE WANT TO ACHIEVE, AND HOW WILL IT HELP YOUR RESEARCH?
Monique Bernsen, **Louise van der Weerd**

17:45 DATA SHARING AND STANDARDIZATION
Joanes Grandjean[1]
[1] Radboud University Medical Center, Medical Imaging, Nijmegen, Netherlands

17:55 EXPERIENCES OF A LARGE NATIONAL INFRASTRUCTURE WITHIN EUROBIOIMAGING
Alessandra Viale

18:05 DISCUSSION!
Gustav Strijkers, **Rick Dijkhuizen**

FRIDAY, 17 MARCH, 2023

09:30 Cancer Biology | PS 26 (EUROPA SAAL (2nd floor))
09:30 Immune Response & Inflammation | PS 27 (MOZART 1 (ground floor))
09:30 Optical Imaging | Probe Chemistry | PS 28 (MOZART 2 (ground floor))
09:30 New Methods, Cross-Modal Neuroimaging & Validation | PS 29 (TRAKL 3rd floor (mirrored in PARACELSUS 2nd floor))
09:30 PET, MRI & Hybrid Technologies | PS 30 (DOPPLER (4th floor))
11:00 JACOB HANNA, Rehovot | Synthetic Ex Utero Embryogenesis: From Naive Pluripotent Stem Cells to Bona Fide Embryo Models | PL 06 (Europa Saal (entrance 2nd floor))
13:30 EMIM 2023 Young Investigator Award Final (YIA) | PL 07-09 (Europa Saal (entrance 2nd floor))
14:30 Awarding & Farewell | (Europa Saal (entrance 2nd floor))

09:30 – 11:00

CANCER BIOLOGY | PS 26 (EUROPA SAAL (2ND FLOOR))

Floris J. van Dalen (Nijmegen, Netherlands); **David Lewis** (Glasgow, UK)

09:30 INTRODUCTORY LECTURE
Kurt Anderson

09:50 IMAGING HUMAN AND CANINE LUNG CANCER USING A PHOSPHOLIPASE A2 ACTIVATABLE FLUOROPHORE
Ritesh Isuri[1], Michael Hart[1], Sofya Osharovich[1], Anatoliy Popov[1], Edward Delikatny[1]
[1] University of Pennsylvania, Department of Radiology, Philadelphia, United States of America

10:02 SIMULTANEOUS PET/MRI CAN MEASURE EXTRACELLULAR PH IN THE TUMOR MICROENVIRONMENT
Lorenzo Palagi[1, 2], Alyssa Pollard[2, 3], Chetan Dhakan[2], Xiaofei Liang[2], Elijah Gonzalez[2], Jorge de la Cerda[2], Fredrick Schuler[2], Tyler Pollard[2], Aikaterini Kotrotsou[2], Federica Pisaneschi[2], Silvio Aime[1], Eliana Gianolio[1], **Mark Pagel**[2]
[1] University of Torino, Department of Molecular Biotechnology and Health Sciences, Torino, Italy
[2] University of Texas MD Anderson Cancer Center, Department of Cancer Systems Imaging, Houston, Texas, United States of America
[3] Rice University, Department of Chemistry, Houston, Texas, United States of America

10:14 MULTISCALE MICROSCOPY TO STUDY ORGAN-SPECIFIC IMMUNOTHERAPY RESPONSE IN BREAST CANCER
Gina Dunkel[1, 2], Marius Mählen[1], Joshua Müller[1], Christina Wong[3], Amina Nurmammadova[4], Andreas Möller[3], Christian Schürch[4], Bettina Weigelin[1, 2]
[1] University of Tübingen, Werner Siemens Imaging Center, Tübingen, Germany
[2] University of Tübingen, Cluster of Excellence iFIT (EXC 2180), Tübingen, Germany
[3] QIMR Berghofer Medical Research Institut, Queensland, Australia
[4] University Hospital and Comprehensive Cancer Center Tübingen, Department of Pathology and Neuropathology, Tübingen, Germany

10:26 METABOLIC SIGNATURES IN HIGH GRADE SEROUS OVARIAN CANCER (HGSOC)

Ming Li Chia[1], Susana Ros[1], Alan Wright[1], Flaviu Bulat[1, 2], Adam Gaunt[1], Maria Vias[1], James Brenton[1, 3, 4], Kevin Brindle[1]

[1] University of Cambridge, Cancer Research UK Cambridge Institute, Cambridge, United Kingdom

[2] University of Cambridge, Department of Chemistry, Cambridge, United Kingdom

[3] Cambridge University Hospital, Addenbrookes Hospital, Cambridge, United Kingdom

[4] University of Cambridge, Department of Oncology, Cambridge, United Kingdom

10:38 IMAGING THE MASTER REGULATOR OF THE ANTIOXIDANT RESPONSE IN NON-SMALL CELL LUNG CANCER WITH POSITRON EMISSION TOMOGRAPHY

Hannah Greenwood[1], Richard Edwards[1], Will Tyrrell[1], Friedrick Baark[1], Eman Khalil[1], Muhammet Tanc[1], Aimee Falzone[2], Lydia Smith[1], George Firth[1], Abigail Barber[1], David Pearce[3, 1], Oskar Vihelmsson Timmermand[1], Robert Hynds[3, 4], Gina DeNicola[2], Timothy Witney[1]

[1] King's College London, London, United Kingdom

[2] Moffitt Cancer Centre, Tampa, United States of America

[3] University College London, London, United Kingdom

[4] The Francis Crick Institute, London, United Kingdom

09:30 – 11:00

IMMUNE RESPONSE & INFLAMMATION | PS 27 (MOZART 1 (GROUND FLOOR))

Kirstin A. Zettlitz (Duarte, USA); **Ferdinand Knieling** (Erlangen, Germany)

09:30 INTRODUCTORY LECTURE

Katrien Vandoorne

09:50 MOLECULAR MRI OF ENDOTHELIAL ACTIVATION AS A PROGNOSTIC TOOL FOR INTRACEREBRAL ANEURYSM (IA) RUPTURE, AND THE ROLE OF BRAIN PERIVASCULAR MACROPHAGES IN IA PATHOPHYSIOLOGY

Marina Rubio[1], Martina Glavan[1], Damien Levard[1], Ana Jelic[1], Juhana Frosen[2], Denis Vivien[1, 3]

[1] INSERM, U1237, Caen, France

[2] Kuopio University Hospital, Department of Neurosurgery, Kuopio, Finland

[3] Caen Normandie University Hospital, Department of Clinical Research, Caen, France

10:02 MULTIPARAMETRIC IMMUNOIMAGING MAPS INFLAMMATORY SIGNATURES IN MURINE MYOCARDIAL INFARCTION MODELS

Alexander Maier[1, 2, 3], Yohana Toner[1, 2, 4], Jazz Munitz[1, 2], Abraham Teunissen[1, 2, 5], Claudia Calcagno[1, 2], Zahi Fayad[1, 2], Willem Mulder[1, 4, 6], **Mandy van Leent**[1, 2, 5]

[1] Icahn School of Medicine at Mount Sinai, BioMedical Engineering and Imaging Institute, New York, United States of America

[2] Icahn School of Medicine at Mount Sinai, Diagnostic, Molecular and Interventional Radiology, New York, United States of America

[3] University of Freiburg, Department of Cardiology and Angiology I, Freiburg, Germany

[4] Radboud University Medical Center, Department of Internal Medicine and Radboud Institute for Molecular Life Sciences, Nijmegen, Netherlands

[5] Icahn School of Medicine at Mount Sinai, Cardiovascular Research Institute, New York, United States of America

[6] Eindhoven University of Technology, Department of Chemical Biology, Eindhoven, United States of America

10:14 TOTAL-BODY PHARMACOKINETICS OF ^{18}F-ARAG – INITIAL RESULTS FROM A PILOT STUDY USING THE UEXPLORER TOTAL-BODY PET

Negar Omidvari[1], Jelena Levi[2], Simon Cherry[1, 3]

[1] University of California Davis, Department of Biomedical Engineering, Davis, United States of America

[2] CellSight Technologies, Inc., San Francisco, United States of America

[3] University of California Davis, Department of Radiology, UC Davis Medical Centre, Sacramento, United States of America

10:26 NANOBODY-BASED HUMAN CD4-DIRECTED PET TRACERS WITH SUPERIOR SENSITIVITY FOR *IN VIVO* MONITORING OF CD4^{+} CELLS IN CANCER AND IMMUNE MEDIATED DISEASES

Stefania Pezzana[1], Bjoern Traenkle[2], Philipp Kaiser[2], Simone Blaess[1], Claudia Pietura[1], Dominik Seyfried[1, 5], Roman Mehling[1], Birgit Fehrenbacher[4], Martin Schaller[4], Simone Riel[4], Andreas Maurer[1, 3], Manfred Kneilling[1, 3, 4], Bernd Pichler[1, 3, 5], Ulrich Rothbauer[2, 3, 6], Dominik Sonanini[1, 7]

[1] Werner Siemens Imaging Center, University of Tübingen, Department of Preclinical Imaging and Radiopharmacy, Tübingen, Germany

[2] University of Tübingen, NMI Natural and Medical Sciences Institute, Reutlingen, Germany

[3] Cluster of Excellence iFIT (EXC2180) "Image-Guided and Functionally Instructed Tumor Therapies", Tübingen, Germany

[4] University of Tübingen, Department of Dermatology, Tübingen, Germany

[5] German Cancer Consortium (DKTK) and German Cancer Research Center (DKFZ) partner site Tübingen, Tübingen, Germany

[6] Eberhard Karls University Tübingen, Pharmaceutical Biotechnology, Tübingen, Germany

[7] University of Tübingen, Department of Medical Oncology and Pneumology, Tübingen, Germany

10:38 COMPARISON OF[^{18}F]FDG AND [^{18}F]FEPPA TRACER UPTAKE IN A MOUSE MODEL OF ZIKA DISEASE

Carla Bianca Victorio[1], Arun Ganasarajah[1], Wisna Novera[1], Rasha Msallam[1], Jing Yang Tham[1], Joanne Ong[1], Marie Jennifer Reolo[1], Satoru Watanabe[2], Shirin Kalimuddin[3], Jenny Low[3], Subhash Vasudevan[2], Ann-Marie Chacko[1]

[1] Laboratory for Translational and Molecular Imaging, Duke-NUS Medical School, Singapore, Singapore

[2] Programme in Emerging Infectious Diseases, Duke-NUS Medical School, Singapore, Singapore

[3] Department of Infectious Diseases, Singapore General Hospital, Singapore, Singapore

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09:30 – 11:00

OPTICAL IMAGING | PROBE CHEMISTRY | PS 28 (MOZART 2 (GROUND FLOOR))

Srecko Gajovic (Zagreb, Croatia); **Jessica Bridoux** (Brussels, Belgium)

09:30 INTRODUCTORY LECTURE

Graeme Stasiuk

09:50 A NOVEL TRANSGENIC REPORTER MOUSE LINE TO TRACK MRC-1 EXPRESSING MONOCYTES/MACROPHAGES USING MULTISCALE OPTICAL IMAGING

Chintan Chawda[1, 2], Giorgia Zambito[1, 2], Roisin Mc Morrow[1, 2], Clemens Lowik[1, 2], Laura Mezzanotte[1, 2]

[1] Erasmus Medical Center, Radiology and Nuclear Medicine, Rotterdam, Netherlands

[2] Erasmus Medical Center, Molecular Genetics, Rotterdam, Netherlands

10:02 SYNTHESIS AND BIOIMAGING APPLICATIONS OF COUMARIN-BASED COUPY FLUOROPHORES WITH ABSORPTION AND EMISSION IN THE OPTICAL WINDOW OF BIOLOGICAL TISSUES.

Albert Gandioso[1], Vicente Marchan[1]

[1] Universitat de Barcelona, Departament de Química Inorgànica i Orgànica, Secció de Química Orgànica, Barcelona, Spain

10:14 NEXT GENERATION HEPTAMETHINE CYANINE DYES FOR BIOCONJUGATION AND NEAR-INFRARED FLUORESCENCE IMAGING OF CANCER

Rananjaya Gamage[1], Donghao Li[1, 2], Cynthia Schreiber[1, 3], Bradley Smith[1]

[1] University of Notre Dame, Department of Chemistry and Biochemistry, Notre Dame, United States of America

[2] National Cancer Institute, Frederick, United States of America

[3] BioAgilytix, Durham, United States of America

10:26 DESIGNING LANTHANIDE(III)/GALLIUM(III) METALLACROWNS AS PROBES FOR NEAR-INFRARED LUMINESCENCE IMAGING

Svetlana Eliseeva[1], Codruta Christiana Badescu Singureanu[1], Anton Kovalenko[1], Timothy Lathion[2], Beatriz Lopez Bermudez[2], Guillaume Collet[1], Céline Besnard[3], Laure Guénée[3], Vincent Pecoraro[2], Stéphane Petoud[1]

[1] Centre National de la Recherche Scientifique (CNRS), Centre de Biophysique Moléculaire UPR 4301, Orléans, France

[2] University of Michigan, Department of Chemistry, Ann Arbor, United States of America

[3] University of Geneva, Laboratory of Crystallography, Geneva, Switzerland

10:38 TARGETED IMAGING OF ENDOGENOUS CARBON MONOXIDE AND VISCOSITY CHANGES WITHIN THE BIOLOGICAL OPTICAL WINDOW

James Wilton-Ely[1]

[1] Imperial College London, Department of Chemistry, London, United Kingdom

09:30 – 11:00

NEW METHODS, CROSS-MODAL NEUROIMAGING & VALIDATION | PS 29 (TRAKL 3RD FLOOR (MIRRORED IN PARACELSUS 2ND FLOOR))

Rick Dijkhuizen (Utrecht, Netherlands); **Sebastien Couillard-Despres** (Salzburg, Austria)

09:30 INTRODUCTORY LECTURE

Noam Shemesh

09:50 SIMULTANEOUS FUNCTIONAL MAGNETIC RESONANCE AND OPTOACOUSTIC IMAGING OF BRAIN-WIDE ACTIVITY IN MICE

Zhenyue Chen[1, 2], Irmak Gezginer[1, 2], Mark-Aurel Augath[1, 2], Yu-Hang Liu[1, 2], Ruiqing Ni[1, 2, 3], Xose Luis Dean-Ben[1, 2], Daniel Razansky[1, 2, 3]

[1] University of Zurich, Institute of Pharmacology and Toxicology, Zurich, Switzerland

[2] ETH Zurich, Institute for Biomedical Engineering, Zurich, Switzerland

[3] Zurich Neuroscience Center (ZNZ), Zurich, Switzerland

10:02 FMRI WITH CONCURRENT OPTICAL IMAGING OF HEMODYNAMIC PARAMETERS AND INTRACELLULAR CALCIUM

Rebekka Bernard[1], Klaus Scheffler[1, 2], Rolf Pohmann[1]

[1] Max Planck Institute for Biological Cybernetics, Magnetic Resonance Center, Tübingen, Germany

[2] University of Tübingen, Department for Neuroimaging, Tübingen, Germany

10:14 A CUSTOM CHRONIC CRANIAL WINDOW IMPLANT FOR WHOLE-BRAIN AND MULTI-MODAL IMAGING IN BEHAVING MICE

Bradley Edelman[1, 3], Dominique Siegenthaler[1], Bethan Jenkins[2], Thomas Frank[2], Emilie Mace[1]

[1] Max Planck Institute for Biological Intelligence (i.f.), Brain-Wide Circuits for Behavior Research Group, Martinsried, Germany

[2] Max Planck Institute for Biological Intelligence (i.f.), Olfactory Memory Research Group, Martinsried, Germany

[3] Max Planck Institute of Psychiatry, Emotion Research Department, Munich, Germany

10:26 *IN VIVO* FOLLOWING OF FIBRINOLYSIS DURING ISCHEMIC STROKE USING A NEW MAGNETIC CONTRAST AGENT: PHYSIOMIC

Audrey Picot[1], Charlene Jacqmarcq[1], Sara Martinez de Lizarrondo[1], Isabelle Bardou[1], Maxime Gauberti[1, 2], Denis Vivien[1, 3], Thomas Bonnard[1]

[1] Normandie Université, , UNICAEN, INSERM U1237, PhIND 'Physiopathology and Imaging of Neurological Disorders', Institut Blood and Brain @ Caen-Normandie, Cyceron, Caen, France

[2] Centre Hospitalier Universitaire Caen, Department of Diagnostic Imaging and Interventional Radiology, Caen, France

[3] Centre Hospitalier Universitaire Caen, Department of Clinical Research, Caen, France

10:38 GABA SPECTROSCOPIC IMAGING FOR THE LOCALIZATION OF THE EPILEPTOGENIC ZONE IN AN ANIMAL MODEL OF FOCAL EPILEPSY.

Alicia Plaindoux[1], Yann Le Fur[2], Jia Guo[3], Clothilde Courivaud[1], Julien Valette[4], Vasile Stupar[1, 5], Florence Fauvelle[1, 5]

[1] Grenoble Institute Neurosciences, INSERM, U1216, University Grenoble Alpes, Grenoble, France

[2] CRMBM, Aix-Marseille University, Marseille, France

[3] Department of Phsychiatry, New York, United States of America

[4] Université Paris-Saclay, CEA, CNRS, MIRCen, Laboratoire des Maladies Neurodégénératives, Fontenay-aux-Roses, France

[5] IRMaGe, INSERM, US17, CNRS, UMS3552, CHU Grenoble Alpes, University Grenoble Alpes, Grenoble, France

09:30 – 11:00

PET, MRI & HYBRID TECHNOLOGIES | PS 30 (DOPPLER (4TH FLOOR))

Adriana Tavares (Edinburgh, UK); **Vít Herynek** (Prague, Czech Republic)

09:30 INTRODUCTORY LECTURE

Monique Bernsen

09:50 AMORPHOUS CALCIUM CARBONATE NANOPARTICLES AS TARGETED MRI CONTRAST AGENTS

Susana Carregal-Romero[1, 3, 4], Lydia Martínez-Parra[1, 2], Marina Piñol-Cancer[1, 2, 3], Carlos Sanchez-Cano[5], Jesús Ruíz-Cabello[1, 3, 6]

[1] Center for Cooperative Research in Biomaterials (CIC biomaGUNE), Basque Research and Technology Alliance (BRTA), Donostia-San Sebastián, Spain

[2] Universidad del País Vasco (UPV/EHU), Leioa, Spain

[3] CIBER de Enfermedades Respiratorias (CIBERES), Madrid, Spain

[4] Ikerbasque, Basque Foundation for Science, Bilbao, Spain

[5] Donostia International Physics Center (DIPC), Donostia-San Sebastián, Spain

[6] Universidad Complutense de Madrid, Departamento de Química en Ciencias Farmacéuticas, Madrid, Spain

10:02 INCREASED VELOCITY DETECTION LIMIT OF SINGLE-CELL TIME-LAPSE MRI USING RADIAL COMPRESSED SENSING IMAGING

Enrica Wilken[1], Asli Havlas[1], Max Masthoff[1], Amir Moussavi[2], Susann Boretius[2], Cornelius Faber[1]

[1] University Hospital Münster, TRIC, Clinic of Radiology, Münster, Germany

[2] German Primate Center - Leibniz Institute for Primate Research, Functional Imaging Laboratory, Göttingen, Germany

10:14 WHOLE BODY IMMUNO-PET-MR WITH GALLIUM-68 LABELLED MICROSIZED MATRIX-BASED MAGNETIC PARTICLES (M3P)

Swannie Pedron[1], Amaury Guillou[2], Fabien Fillesoye[2], Charlène Jacqmarcq[1], Cécile Perrio[2], Denis Vivien[1, 3], Maxime Gauberti[1, 3], Jonathan Vigne[1, 3], **Thomas Bonnard**[1]

[1] Normandie Université, UNICAEN, INSERM U1237, PhIND (Physiopathology and Imaging of Neurological Disorders), Institut Blood and Brain @ Caen-Normandie, Cyceron, Caen, France

[2] Normandie Université, UNICAEN, CEA, CNRS, UMR 6030, LDM-TEP, Cyceron, Caen, France

[3] CHU Caen, Clinical Research Department, Caen, France

10:26 THE FIRST IN-VIVO POSITRONIUM IMAGING OF HUMANS

Pawel Moskal[1, 2, 3], Jakub Baran[1, 2, 3], Eryk Czerwiński[1, 2, 3], Kamil Dulski[1, 2, 3], Grzegorz Korcyl[1, 2, 3], Szymon Niedźwiecki[1, 2, 3], Leszek Królicki[4], Ewa Stępień[1, 2, 3], On behalf of the J-PET Collaboration[3]

[1] Jagiellonian University, Institute of Physics, Krakow, Poland

[2] Center for Theranostics, Jagiellonian University, Krakow, Poland

[3] Total-Body PET Laboratory, Jagiellonian University, Krakow, Poland

[4] Medical University of Warsaw, Warsaw, Poland

10:38 SIMULATION STUDY OF DEDICATED PET SCANNER CAPABLE OF DYNAMICALLY IMAGING ORGANS-ON-CHIPS

Christoph Clement[1], Gabriele Birindelli[1], Marco Pizzichemi[2, 3], Fiammetta Pagano[2, 3], Marianna Kruithof-De Julio[4], Sibylle Ziegler[5], Axel Rominger[1], Qiu Huang[6], Etiennette Auffray[2], Kuangyu Shi[1]

[1] University of Bern, Department of Nuclear Medicine, Inselspital Bern, Bern, Switzerland

[2] CERN, EP Department, Geneva, Switzerland

[3] University of Milano-Bicocca, Physics Department, Milan, Italy

[4] University of Bern, Department for Biomedical Research, Inselspital Bern, Bern, Switzerland

[5] LMU Munich, Department of Nuclear Medicine, University Hospital, Munich, Germany

[6] Shanghai Jiao Tong University, Department of Nuclear Medicine, Rui Jin Hospital, Shanghai, China

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11:00 – 11:45

JACOB HANNA, REHOVOT | SYNTHETIC EX UTERO EMBRYOGENESIS: FROM NAIVE PLURIPOTENT STEM CELLS TO BONA FIDE EMBRYO MODELS | PL 06 (EUROPA SAAL (ENTRANCE 2ND FLOOR))

Ewa Ł. Stępień (Krakow, Poland); **Colinda Scheele** (Leuven, Belgium)

Jacob Hanna is a Senior Scientist and Professor in the Department of Molecular Genetics at the Weizmann Institute of Science in Israel. He leads an interdisciplinary group of scientists interested in **understanding embryonic stem cell biology**, modeling **early embryo development** and advance **stem-cell-based human disease** platforms.

Specifically, they investigate the process of **cellular reprogramming**, in which induced pluripotent stem cells are generated from somatic cells. In parallel, Jacob's team studys how different *in vitro* grown stem cell populations (embryonic and extra-embryonic) can self-organize into stem cell-derived (synthetic) embryoid models (termed SEMs) from multiple species, and how they can be used to improve stem cell differentiation into organs and tackle key developmental phenomena.

11:00 SYNTHETIC *EX UTERO* EMBRYOGENESIS: FROM NAIVE PLURIPOTENT STEM CELLS TO BONA FIDE EMBRYO MODELS

Jacob Hanna[1]

[1] Weizmann Institute of Science, Department of Molecular Genetics, Rehovot, Israel

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13:30 – 14:30

EMIM 2023 YOUNG INVESTIGATOR AWARD FINAL (YIA) | PL 07-09 (EUROPA SAAL (ENTRANCE 2ND FLOOR))

Michal Neeman (Rehovot, Israel); **Fabian Kiessling** (Aachen, Germany)

The three finalists have been carefully selected based on their abstract submissions, the related review scores, and subsequent intensive evaluation by the selection committee - it's always a tough competion! The decision on the winner will be taken right after this session on-site in Salzburg.

13:30 ENHANCING TUMOUR-TARGETED DRUG DELIVERY BY DMOG-INDUCED VASCULAR PROMOTION

Asmaa Elshafei[1], Fabian Kiessling[1], Twan Lammers[1]

[1] RWTH Aachen University, Experimental Molecular Imaging (EXMI), Aachen, Germany

13:50 DEEP LEARNING BASED IMAGE ENHANCEMENT FOR SUB-1MBQ/SUB-1MIN 18F-FDG TOTAL BODY PET MOUSE IMAGING

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14:10 FUNCTIONAL IMAGING PHENOTYPING IN RARE POMPE DISEASE

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14:30 – 15:00

AWARDING & FAREWELL | (EUROPA SAAL (ENTRANCE 2ND FLOOR))

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