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TUESDAY, 14 MARCH, 2023

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11:30	Quantification in Molecular Imaging | ES 02 (MOZART 2 (ground floor))
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15:15	Alternatives to Gadolinium Based Contrast Agents in MRI | PRO 02 (MOZART 1 (ground floor))
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18:45	Hyperpolarized MRI | SG 09 (TRAKL (3rd floor))
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)

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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))

19:30 POSTER SESSION I

Tumour Microenvironment | PW01

Cancer Prevention, Detection & Diagnosis | PW02

Cancer Therapy | preclinical I | PW03

Brain Metabolism, Microstructure & Anatomy II | PW04

New Methods, Cross-Modal Neuroimaging & Validation | PW05

MRI & MPI II| Probes/Reporter Genes | PW06

Optical Imaging | Probes/Reporter Genes | PW07

PET/SPECT, Radionuclide, X-Ray, CT I | Probes/Reporter Genes | PW08

Optoacoustic, Ultrasound, Multimodal | Probes/Reporter Genes | PW09

Interventional Imaging | PW10

Cardiovascular & Respiratory Functions | System & Cell Biology | PW11

Immune Response & Inflammation | PW12

Metabolism I | PW13

Imaging De-/Regeneration | Biology | PW14

Radiomics, Machine Learning & AI | PW15

MRS/Hyperpolarization Technologies | PW16

Multi-modal & Hybrid Technologies (incl. PET/ SPECT) | PW17

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

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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 [18F]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 LACQ140^{I}(*) 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

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

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

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

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

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]

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[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]

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[5] University College London, Department of Medical Physics and Biomedical Engineering, London, United Kingdom

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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]

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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]

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[3] Rigaku Americas Corporation, The Woodlands, Texas, United States of America

[4] The Royal Veterinary College, Hatfield, United Kingdom

POSTER SESSION I

ATTENTION: There is a change of hard copy posters that are hung up, depending on the poster session the poster is scheduled to present:

Case 1 - Poster scheduled to presented in POSTER SESSION I on Wednesday 15 March 2023
Hanging the poster: Tuesday morning
Taking down: right after the poster session on Wednesday.

Case 2 - Poster is scheduled to presented in POSTER SESSION II on Friday 17 March 2023
Hanging the poster: Thursday morning
Taking down: right after the poster session on Friday

All posters are anytime available as digital posters & video-pitches via the EMIM App!

TUMOUR MICROENVIRONMENT | PW01

Marloes Groot (Amsterdam, Netherlands); **Timo de Groof** (Brussels, Belgium)

100 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]

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

[3] Institute of Chemical Immunology, Nijmegen, Netherlands

101 SEX DEPENDENCE OF GLIOBLASTOMA-RELATED MRI PARAMETERS IN A MOUSE MODEL OF DIET-INDUCED OBESITY

Nuria Arias-Ramos[1], Marcos Donnay Pérez[1], Javier Arcos Hodar[1], Shuling Ferradas-Fernández[1], Blanca Lizarbe[2, 1], Pilar López-Larrubia[1]

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[2] Universidad Autónoma de Madrid, Departamento de Bioquímica, Madrid, Spain

102 REPURPOSING TAMOXIFEN AS A REMODELING AGENT OF THE TUMOR MICROENVIRONMENT

Ilaria Biancacci[1], Daniele De Santis[2], Karina Benderski[1], Elena Rama[1], Diana Moeckel[1], Quim Peña[1], Alexandros Sofias[1], Yang Shi[1], Fabian Kiessling[1], Twan Lammers[1], **Lorena Consolino**[1]

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103 *IN VIVO* IMAGING OF TUMOUR-ASSOCIATED CHANGES IN SYSTEMIC IMMUNE CELL DYNAMICS USING TIME-LAPSE MRI

Asli Havlas[1], Ina Fredrich[1], Enrica Wilken[1], Cornelius Faber[1], Max Masthoff[1], Anne Helfen[1]

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104 STRATEGIES FOR PET IMAGING IN ACIDIC TUMOR MICROENVIRONMENTS

Jürgen Brück[1], Nicole Bausbacher[1], Dennis Kerner[1], Benedikt Klasen[1], Dominik Schauenburg[2], Mathias Schreckenberger[1], Matthias Miederer[1]

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[2] Synthesis of Macromolecules, Max Planck Institute for Polymer Research, Mainz, Germany

105 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]

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

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106 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]

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107 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]

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108 DEVELOPMENT OF REPORTER GENE-AFFORDED FATE MAPPING IN FULLY IMMUNOCOMPETENT CANCER MODELS.

Sarah Harding[1], Sahand Farmand[1], Eleni Skourti[1], Gilbert Fruhwirth[1]

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109 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]

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110 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]

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

111 VASCULARIZED ORGANOID ON-A-CHIP MODEL FOR THE INVESTIGATION OF HYPOXIA-INDUCED ANGIOGENESIS

Ngan Phung[1, 2], Magdalena Skubal[1], Benedict Mc Larney[1], Grimm Jan[1, 2]

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112 HYPOXIA IN PRECLINICAL TUMORS – QUANTITATIVE OXYGEN MAPPING IN VIVO

Agnieszka Drzał[1], Aleksandra Bienia[1], Aleksandra Murzyn[1], Gabriela Dziurman[1], Dariusz Szczygieł[1], Małgorzata Szczygieł[1], Boris Epel[2, 3], Martyna Krzykawska-Serda[1, 2], **Martyna Elas**[1]

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CANCER PREVENTION, DETECTION & DIAGNOSIS | PW02

Shadi Esfahani (Boston, USA); **Joel Garbow** (Saint Louis, USA)

130 NEW TECHNOLOGY FOR RNA DETECTION IN LIQUID BIOPSIES BASED ON FLUORESCENT POLYMERIC NANOPARTICLES

Elisabete Cruz da Silva[1, 2], Paraskevi Gaki[1, 2], Yevheniia Markovska[1], Lorène Tallet[1], Andreas Reisch[1, 2], John Volke[1], Andrey Klymchenko[1, 2]

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131 *IN VITRO* AND *IN VIVO* STUDY OF DENDRONIZED IRON OXIDE NANOPARTICLES DESIGNED FOR TARGETED IMAGE-GUIDED THERAPY IN BREAST CANCER CONTEXT

Thomas Gevart[1], Cyril Michel[1], Sébastien Boutry[1, 2], Lionel Larbanoix[1, 2], Barbara Freis[1, 3], Maria Ramirez[3], Sylvie Bégin[3], Sophie Laurent[1, 2]

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132 CD44V6, EPCAM, CMET, ROCK2 AND DUOX2 AS TARGETED BIOMARKERS FOR THE IDENTIFICATION OF LYMPH NODE MICROMETASTASIS IN COLON CARCINOMA

Andrea Sterkenburg[1], Anne van der Waaij[1], Daan Sikkenk[2, 3], Arend Karrenbeld[1], Mirela Perla[1], Varvara Kyriskozoglou[1], Esther Consten[2, 3], Wouter Nagengast[1]

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133 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]

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134 THE EVALUATION OF [18F]FDG AND [18F]FLT RADIOTRACERS AS POTENTIAL BIOMARKERS OF EARLY TREATMENT OUTCOME IN AGGRESSIVE BREAST CANCER

Paolo Rainone[1, 3], Silvia Valtorta[2, 3], Sergio Todde[1], Chiara Villa[1], Marialuisa Lavitrano[1], Rosa Moresco[1, 2, 3]

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135 SIMULTANEOUS 18F-FDG PET/MR IMAGING FOR METASTASES IDENTIFICATION IN A DISSEMINATED HUMAN PRECLINICAL MELANOMA MODEL

Alexandra Oudot[1], Peggy Provent[2], Alan Courteau[1, 3], Nicolas Hoffmann[2], Mélanie Guillemin[1], Jordan Longin[2], Sarah Belderbos[2], Bertrand Collin[1, 4], Marc Hillairet de Boisferon[2], Alexandre Cochet[1, 3, 5], Cyril Berthet[2]

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136 CHARACTERIZATION OF TUMOR GROWTH AND METABOLISM IN AN ORTHOTOPIC SYNGENEIC CHOLANGIOCARCINOMA MODEL USING MULTIMODAL PET-MR IMAGING

Lena Zachhuber[1], Thomas Filip[2], Mathilde Löbsch[2], Johann Stanek[1], Stefan Scheiner[3], Petra Vician[3], Thomas Helbich[1], Marcus Hacker[1], Thomas Wanek[1], Walter Berger[3], Claudia Kuntner[1, 4]

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137 OPTIMIZING [18F]FDG-PET IMAGING FOR DETECTION OF DISTINCT SUBTYPES IN PANCREATIC DUCTAL ADENOCARCINOMA (PDAC)

Irina Heid[1], Moritz Mayer[1], Lukas Kritzner[1], Katja Steiger[2, 3], Franz Schilling[4], Rickmer Braren[1, 5]

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[3] Technical University of Munich, Comparative Experimental Pathology (CEP), Munich, Germany

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[5] German Cancer Consortium (DKTK), partner site Munich, Munich, Germany

138 A NOVEL PET DIAGNOSTIC TOWARDS STRATIFICATION OF PATIENTS UNDERGOING ANTI-ANGIOGENESIS THERAPY

Jeffrey Collins[1], Mikayla Tamboline[1], Donald Bottaro[2], Marina Backer[3], Joseph Backer[3], Michael vanDam[1], Shili Xu[1], **Susanta Sarkar**[4]

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[4] CadenzaMed, Berwyn, United States of America

139 EARLY STRATIFICATION OF LUNG CANCER PATIENTS WITH OR WITHOUT CACHEXIA WITH A MULTI-ORGAN, PET-DRIVEN SYSTEMIC ANALYSIS

Daria Ferrara[1], Elisabetta Abenavoli[5], Armin Frille[3, 6], Stefan Gruenert[2], Marcus Hacker[2], Swen Hesse[7], Lukas Hofmann[3], Sune Holm[4], Osama Sabri[7], Roberto Sciagrà[5], Anke Tönjes[8], Hubert Wirtz[6], Josef Yu[1, 2], Thomas Beyer[1], Lalith Shiyam Sundar[1]

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140 HYPERPOLARIZED ^{13}C-PYRUVATE AS A MARKER OF RESPONSE TO ANTI-PD1 IMMUNE CHECKPOINT INHIBITOR IN YUMMER 1.7 MELANOMA XENOGRAFTS.

Chantale Farah[1], Marie-Aline Neveu[2], Caroline Bouzin[3], Zorica Knezevic[4], Bernard Gallez[1], Eleonora Leucci[4], Jean-François Baurain[3], Lionel Mignion[1], Bénédicte Jordan[1]

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141 TARGET DISCOVERY FOR RADIOPHARMACEUTICAL DEVELOPMENT IN HEPATOCELLULAR CARCINOMA

Freddy Escorcia[1, 2, 3], Joon Chung[1, 3], Philip Homan[3], Margaret Cam[3], Paden King[1, 3], Stanley Fayn[1, 3], Kwamena Baidoo[1, 3], Valeria Londono[1, 3], Peter Choyke[1, 3]

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142 *IN VITRO* ASSESSMENT OF [^{18}F]JHU94620-D_8 TO DETERMINE THE EXPRESSION OF CANNABINOID RECEPTOR 2 – A PROGNOSTIC BIOMARKER IN BREAST CANCER

Anne Heerklotz[1, 5], Rareş Moldovan[1], Guy Bormans[4], Jens Pietzsch[2], Birgit Belter[2], Klaus Kopka[1, 3], **Daniel Gündel**[1]

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143 STUDY ON SPECIFICITY AND SENSITIVITY OF THE POSITRONIUM BIOMARKER IN COLON CANCER SAMPLES

Ewa Stępień[1, 2, 3], Agnieszka Babińska[1, 2], Michał Pędziwiatr[4], Ewelina Kubicz-Staszkiewicz[1, 2, 3], Piotr Małczak[4], Szymon Niedźwiecki[6, 2, 3], Kamil Dulski[6, 2, 3], Magdalena Ulatowska-Białas[5], Paweł Moskal[6, 2, 3]

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144 ULTRASOUND-GUIDED NEEDLE BIOPSY FLUORESCENCE SPECTROSCOPY WITH QUANTITATIVE FLUORESCENCE ENDOSCOPY FOR RESPONSE MONITORING IN PATIENTS WITH ESOPHAGEAL CANCER AFTER NEOADJUVANT CHEMORADIOTHERAPY USING BEVACIZUMAB-800CW

Iris Schmidt[1], Anne van der Waaij[1], Gursah Kats-Ugurlu[2], Frederieke Dijkstra[3], Jan Willem Haveman[3], Boudewijn van Etten[3], Dominic Robinson[4], Wouter Nagengast[1]

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[3] University Medical Center Groningen, Department of Surgery, Groningen, Netherlands

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145 IMPROVEMENT OF PROSTATE CANCER CONTRAST IN MOLECULAR MAGNETIC RESONANCE IMAGING USING COMPLEX NANOPARTICLES IN A MOUSE ANIMAL MODEL

Barbara Blasiak[1, 2], Armita Dash[3], John Matyas[4], David MacDonald[1], Frank C. J. M. van Veggel[3], Peter Lata[5], Boguslaw Tomanek[1, 2, 6]

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146 RADIOLABELING AND PET BIODISTRIBUTION OF A NOVEL ANTI-HER3 (SRB17) MAB IN HEALTHY MICE

Lara García-Varela[1, 2], Maria Muñoz González[1], Jessica Codesido[1], Noemi Gómez Lado[1], Sheila Bouzón Barreiros[1], Oliver Seifert[3], Roland Kontermann[3], Laureano Simón[3], Amparo Perez-Diaz[3], Elia Alvarez-Coiradas[3], Pablo Garrido[3], Pablo Aguiar[1, 2]

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CANCER THERAPY | PRECLINICAL I | PW03

Margret Schottelius (Lausanne, Switzerland); **Tony Lahoutte** (Brussels, Belgium)

150 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]

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[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

151 HISTIDINE CONTAINING PLGA NANOPARTICLES AS NOVEL PH SENSITIVE THERANOSTIC AGENTS FOR BORON NEUTRON CAPTURE THERAPY (BNCT).

Jacopo Sforzi[1], Alberto Lanfranco[2], Rachele Stefania[3], Diego Alberti[1], Valeria Bitonto[1], Stefano Parisotto[2], Polyssena Renzi[2], Nicoletta Protti[4], Saverio Altieri[4], Annamaria Deagostino[2], Simonetta Geninatti Crich[1]

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152 BIOCOMPATIBLE OILY FERROFLUID FOR BETTER THERMAL TUMOR ABLATION EFFICIENCY.

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153 MAGNETIC HYPERTHERMIA TUMOR ABLATION AND TUMOR MICROENVIRONMENT MODULATION MONITORED BY OPTICAL IMAGING

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154 THERAPEUTIC EFFECTS OF RECOMBINANT MMP-ACTIVATABLE HGV-APOPTIN PROTEINS FUSED WITH DIFFERENT LENGTHS OF XTEN ON CANCER CELLS

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155 DYNAMIC CONTRAST-ENHANCED (DCE) MRI FOR MONITORING PERFUSION CHANGES AFTER CHEMOTHERAPY TREATMENT IN AN ENDOGENOUS MOUSE MODEL OF PDAC

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156 MODULATION OF GLIOMA GROWTH BY $A_{2A}R$ AND D_2R ANTAGONIST TREATMENT IN C6 GLIOMA BEARING RATS

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157 ENHANCED TUMOR THERAPEUTIC EFFECT BY COMBINATION OF HYALURONIDASE AND CYTOLYSIN A IN THE GENETICALLY ENGINEERED *SALMONELLA TYPHIMURIUM*

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BRAIN METABOLISM, MICROSTRUCTURE & ANATOMY II | PW04

Denis Vivien (Caen, France); **Jens P. Bankstahl** (Hannover, Germany)

228 REGULAR PHYSICAL ACTIVITY AND MOTOR LEARNING INDUCE WHITE MATTER MYELINATION: A LONGITUDINAL, MULTI-SHELL DIFFUSION MRI STUDY IN RATS

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229 DETECTION OF FIBRIN ACCUMULATION BY PET/CT IMAGING EMPLOYING CLICK CHEMISTRY

Marta Casquer-Veiga[1, 2], Gorka Sobrino[2, 3], Jorge Rubio[4], Carlos Ceron[1, 2], Mario González-Arjona[3, 2], Manuel Desco[3, 5, 6], Marta Costes-Canteli[1, 2, 7], **Beatriz Salinas**[3, 2, 5]

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230 MULTIMODAL IMAGING OF GLUCOSE METABOLISM AND TRANSPORT IN THE TGF344-AD RAT MODEL OF ALZHEIMER'S DISEASE USING 18F-FDG-PET AND 3OMG-CEST-MRI

Eugene Kim[1], Maria Elisa Serrano Navacerrada[1], Camilla Simmons[1], Mattia Baraldo[2], Luiza Damoc[1], Jana Kim[3], Federico Turkheimer[1], Diana Cash[1], Mattia Veronese[1]

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231 MOLECULAR THROMBOIMAGE FOR PERSONALIZED ISCHEMIC STROKE DIAGNOSTIC

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232 P_2Y_{12} RECEPTORS, TARGETS OF NEW PET RADIOTRACERS FOR IMAGING NEUROINFLAMMATION.

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233 MAPPING THE NEUROANATOMICAL SUBSTRATES OF COMPULSIVE BEHAVIOR IN RATS

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235 IMPROVED DETECTION OF INVADING GLIOBLASTOMA TUMOUR MARGIN USING MTE-NODDI

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236 CHARACTERISING THE RELATIONSHIP BETWEEN INTRACRANIAL PRESSURE AND WATER FLUX ACROSS THE BLOOD-CEREBROSPINAL FLUID BARRIER WITH NON-INVASIVE MRI.

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237 INVESTIGATING PERMEABILITY OF THE BLOOD-CEREBROSPINAL FLUID BARRIER TO WATER USING MULTI-ECHO TIME ARTERIAL SPIN LABELLING (ASL) MRI.

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238 THE EFFECTS OF BRADYKININ TYPE 2 RECEPTOR DEFICIENCY ON MICROGLIAL RESPONSE AFTER CEREBRAL ISCHEMIA IN MICE

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NEW METHODS, CROSS-MODAL NEUROIMAGING & VALIDATION | PW05

Xiaoqing A. Zhou (Boston, USA); **Viola Angèle** (Marseille, France)

240 A CONSENSUS PROTOCOL FOR TASK-FREE ANESTHETIZED RAT FUNCTIONAL MAGNETIC RESONANCE IMAGING AND DATA ANALYSIS

Roël Vrooman[1], Gabriel Desrosiers-Gregoire[3, 4], Gabriel Devenyi[3, 4], Yen-Yu Ian Shih[6], Sung-Ho Lee[6], Monica van den Berg[5], Georgios Keliris[5], Joanes Grandjean[1, 2]

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241 FUNCTIONAL CBV MEASUREMENTS BASED ON QUADRUPOLAR RELAXATION AFTER ADMINISTRATION OF $H_2{}^{17}O$

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242 ACCURATE PHARMACOKINETIC MODELING USING AN EXTRACORPOREAL CIRCULATION BY SHUNTING THE CAROTID ARTERY FOR AIF DETERMINATION IN MICE – A MULTIMODAL STEP-BY-STEP VALIDATION APPROACH

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243 PER-OCCLUSION DYNAMIC CONTRAST-ENHANCED ULTRASOUND MAY REPLACE PERFUSION MRI FOR ASSESSING THE AREA AT RISK OF INFARCTION IN A MOUSE MODEL OF ACUTE ISCHEMIC STROKE

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244 EVALUATION OF PRODROMAL MARKERS OF DEGENERATION IN A PARKINSON'S DISEASE MOUSE MODEL USING MULTIMODAL IMAGING ANALYSIS

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245 MULTIMODAL PET-MRI DATABASE FOR COLLABORATIVE TRANSLATIONAL RESEARCH ON *MACACA FASCICULARIS*.

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246 STRATEGIES FOR CHARACTERIZATION AND REMOVAL OF MOTION ARTIFACTS IN AWAKE RESTING-STATE FUS

Samuel Diebolt[2, 1, 4], Jean-Charles Mariani[1], Silvia Cazzanelli[2, 4], Adrien Bertolo[2, 4], Andrea Kliewer[3], Laurianne Beynac[1], Renata Santos[1], Mickael Tanter[2], Bruno-Félix Osmanski[4], Zsolt Lenkei[1], Thomas Deffieux[2]

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247 3D TRANSCRANIAL ULTRASOUND LOCALIZATION MICROSCOPY OF THE WHOLE MOUSE BRAIN USING RCA

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248 CHARACTERIZATION OF ALPHA-SYNUCLEIN PROBES IN HUMAN AND MOUSE MODELS OF PARKINSON'S DISEASE ANDRECOMBINANTFIBRIL.

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249 WHICH PARTIAL VOLUME CORRECTION (PVC) STRATEGY SHOULD WE USE FOR LONGITUDINAL BRAIN PET QUANTIFICATION? A COMPARISON STUDY USING [18F]FLORTAUCIPIR

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250 A MULTIMODAL IMAGING APPROACH FOR THE DETECTION OF SECONDARY NEURODEGENERATION IN A TRAUMATIC BRAIN INJURY (TBI) MODEL IN RATS USING THE PET TRACER *CIS*-4-[18F]-FLUORO-D-PROLINE (*CIS*-F-D-PROLINE) AND NEW QUANTITATIVE MR METHODS

Carina Balduin[1], Michael Schöneck[1], Carina Stegmayr[1], Lisa Liebenstund[2], Sandra Krause[1], Jörg Felder[1], Wieland Worthoff[1], Chang-Hoon Choi[1], Ezequiel Farrher[1], Ana-Maria Oros-Peusquens[1], Dennis Thomas[3], Fabian Küppers[1], Bernd Neumaier[4], N. Jon Shah[1, 5, 6], Karl-Josef Langen[1, 7], Antje Willuweit[1]

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251 VISUALIZATION OF PRE-SYNAPTIC DENSITY NETWORKS USING [11C]UCB-J PET IMAGING AND INDEPENDENT COMPONENT ANALYSIS IN MICE

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252 LONG-TERM CHANGES IN MYELINATION AND NEUROINFLAMMATION IN A RAT MODEL OF FOCAL DEMYELINATION

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253 FUNCTIONAL FINGERPRINTING OF NEUROACTIVE DRUGS ("FFIND")

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254 MOTIF ANALYSIS OF RESTING-STATE FMRI NETWORKS WITH SPECIAL FOCUS ON FUNCTIONAL ROLE OF THE MOTIFS

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255 QUANTITATIVE BRAIN PERFUSION MRI USING ASL AND DSC – TWO DISTINCT PHENOMENA DESCRIBED WITH THE SAME UNIT OF MEASUREMENT?

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MRI & MPI II| PROBES/REPORTER GENES | PW06

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315 INTERNAL STRUCTURE OF GD-DOPED POLYMER ENTRAPPED-PERFLUOROCARBON NANOPARTICLES AFFECTS ^{19}F RELAXATION

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316 REVERSIBLE PH-RESPONSIVE MRI CONTRAST WITH PARAMAGNETIC POLYMER MICELLES

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317 FROM IN VITRO TO IN VIVO ZINC DETECTION BY MRI USING A LANTHANIDE COMPLEX-ZINC FINGER PEPTIDE CONJUGATE

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318 ALBUMIN IMPROVES INTERNALISATION OF POLYMERIC NANOPARTICLES IN PANCREATIC ADENOCARCINOMA: A THERANOSTIC APPROACH

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319 THERANOSTIC NANOCARRIERS FOR COMBINED DRUG DELIVERY AND DIAGNOSTIC MONITORING BY MAGNETIC PARTICLE IMAGING (MPI)

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320 COMPARISON OF ZN AND CO FERRITES FOR MAGNETIC PARTICLE IMAGING

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321 LONG-TERM STABILITY OF PLGA-PFCE NANOPARTICLES

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322 FAST DYNAMIC MPI CYTOMETRY

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323 A CROSS-MODALITY COMBINATION OF IMAGING AGENTS FOR THE DETECTION OF ATHEROSCLEROTIC PLAQUES

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324 DUAL RESPONSIVE MR PROBE BASED ON OXIDATION-TRIGGERED CHEMICAL SHIFT

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OPTICAL IMAGING | PROBES/REPORTER GENES | PW07

Laura Mezzanotte (Rotterdam, Netherlands); **Stanislav B. Baluschev** (Mainz, Germany)

334 4,4'-QUINOCYANINES FOR NIR-I AND SWIR FLUORESCENT IMAGING

Anatoliy Popov[1], MIchael Hart[1], Ritesh Isuri[2], Sofya Osharovich[1], Edward Delikatny[1]

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[2] University of Pennsylvania, Department of Chemistry, Philadelphia, United States of America

335 LUCIFERASE EXPRESSION IN KPC CELLS ELICITS AN IMMUNOGENIC RESPONSE IN A MOUSE MODEL OF PDAC

Daniele Ferrari[1], Fernanda Ramos-Gomes[1], Andrea Markus[1], Frauke Alves[1, 2]

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336 HEME OXYGENASE-1 (HO-1) ACTIVITY IN HUMAN-DERIVED MACROPHAGES WITH AN AMINOCOUMARIN-PORPHYRIN FRET 'BREAK-APART' PROBE

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337 CAGED LUCIFERIN BIOLOUMINESCENCE IMAGING OF APOPTOSIS IN THE MOUSE BRAIN REVEALS DIFFERENCES BETWEEN TLR2-KNOCKOUT AND WILD TYPE ANIMALS

Paula Josić[1], Sanja Srakočić[1], Siniša Škokić[1], Anton Glasnović[1], Marina Radmilović Dobrivojević[1], **Srećko Gajović**[1]

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338 TOWARDS MOLECULAR LIGHT UPCONVERTING ASSEMBLIES FOR BIOIMAGING.

Léna Godec[1], Nadège Hamon[2], Richard Knighton[1], Maryline Beyler[2], Raphaël Tripier[2], Loïc Charbonnière[1]

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339 FIRST-IN-CLASS NEAR-INFRARED FLUORESCENT LIGANDS TO TARGET VOLTAGE-GATED CALCIUM CHANNELS.

Ermal Ismalaj[1, 2], Carlotta Borgarelli[1], Yvonne E. Klingl Klingl[3, 4], Abril Escamilla-Ayala[3, 4], Sebastian Munck[3, 4], Ludo Van Den Bosch[3, 4], Wim De Borggraeve[1]

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340 RAISING RADIANCE WITH LIPOSOMES AND CHERENKOV RADIATION EMITTERS

Sébastien Saou[1], Mathieu Moreau[1], Vivian Lioret[1], Richard Decreau[1]

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341 QUANTUM DOTS FOR TARGETED MULTIMODAL MRI/NIR FLUORESCENCE IMAGING OF GLIOBLASTOMA

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342 DEVELOPMENT AND OPTIMIZATION OF A DIMERIC PEPTIDE TRACER FOR NERVE-SPARING INTERVENTIONS

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343 NEW INSIGHTS INTO THE MECHANISM OF IMAGING CATHEPSIN S-POSITIVE TUMORS *IN VIVO*

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

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345 EVALUATION OF CARBONIC ANHYDRASE IX-TARGETED NEAR-INFRARED DYES FOR FLUORESCENCE IMAGING APPLICATIONS

Stefano Rusconi[1], Alessia Cordaro[2], Federica Chianale[2], Margherita Iaboni[2], Francesco Stummo[2], Francesca Arena[2], Francesca Lacava[2], Daniele Faletto[2], Erika Reitano[2], Alessia Adamo[2], Roberta Napolitano[2], Luisa Poggi[2]

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346 TRANSGLUTAMINASE 2 (TG2) SUBSTRATE CONSTRUCT AS A REPORTER GENE FOR TG2 ACTIVITY

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347 DUAL LABELLING OF AN ANTI-CEA NANOBODY FOR PET AND FLUORESCENCE IMAGING *VIA* A CHEMICALLY SYNTHESISED TRIVALENT PLATFORM

Jelena Saliën[1, 2], Romane Vizier[1], Marcus Stroet[2], Michael Claron[1], Delphine Vivier[1], Jessica Bridoux[2], Sam Floru[2], Sophie Hernot[2], Victor Goncalves[1], Franck Denat[1]

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348 DEVELOPMENT OF A NEW SERIES OF WATER-SOLUBLE NIR-II AZA-BODIPYS FOR FLUORESCENCE IMAGING APPLICATIONS

Elisa Chazeau[1, 2, 3], Malorie Privat[1], Amélie Godard[1, 4], Cindy Racoeur[2, 3], Ewen Bodio[1], Lucie Sancey[4], Catherine Paul[2, 3], Christine Goze[1]

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349 HYPOXIA IMAGING USING A SELECTIVE AND SENSITIVE CY5-CY7 RATIOMETRIC PROBE

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PET/SPECT, RADIONUCLIDE, X-RAY, CT I | PROBES/REPORTER GENES | PW08

Jason Lewis (New York, USA); **Amaury Guillou** (Caen, France)

350 RADIOLABELING AND PET BIODISTRIBUTION OF A NOVEL THERAPEUTIC P-TAU MAB IN DIFFERENT AD MODELS

Lara García-Varela[1, 2], Daniel Romaus Sanjurjo[3], Oscar Moreno[4], Jessica Codesido[2], Marta Aramburu Nuñez[3], Noemi Gomez Lado[1], Alberto Ouro[3], Jordi Llop[4], Tomás Sobrino[3], Pablo Aguiar[1, 2]

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351 DESIGN AND EVALUATION OF A NOVEL, CARBOHYDRATE-DERIVED CASPASE-3 RADIOTRACER

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352 PET IMAGING OF ALPHA-SYNUCLEIN PATHOLOGY

Ran Sing Saw[1], Sabrina Buss[1], Laura Kuebler[1], Sergey Ryazanov[2, 3], Andrei Leonov[2, 3], Federica Bonnano[1], Daniel Bleher[1], Ann Kathrin Grotegerd[1], Madhushree Pethe[1], Felix Schmidt[2], Viktoria Ruf[4], Kelly Henry[5], Christine Sandiego[6], Bernadette Dahl[7], Philipp Kahle[7], Gregory Bowden[1], Bernd Pichler[1], Andreas Maurer[1], Christian Griesinger[3], Armin Giese[2, 4], Kristina Herfert[1]

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353 DEVELOPMENT OF RADIOLABELED HOMING PEPTIDE FOR IMAGE-GUIDED BLOOD-BRAIN BARRIER TRANSPORT

Surachet Imlimthan[1], Maarja Haugas[2], Kristina Põšnograjeva[2], Tambet Teesalu[2, 3], Mirkka Sarparanta[1]

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354 GALLERIA MELLONELLA AS A MODEL FOR IN VIVO BIOCOMPATIBILITY AND TRACKING STUDIES WITH MICRO-CT

Timen Mooren[1], Mathias Janssens[1], Xavier Casadevall i Solvas[2], Jorik Waeterschoot[2], Greetje Vande Velde[1]

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355 [^{11}C]EHT1610, A POTENTIAL RADIOLIGAND FOR QUANTIFICATION OF CEREBRAL DYRK1A BY PET IMAGING: ONE-POT RADIOSYNTHESIS AND PRECLINICAL STUDIES

Pauline Poutrel[1], Fabien Fillesoye[1], Méziane Ibazizène[1], Yann Herault[3], Corinne Fruit[2], Thierry Besson[2], Cécile Perrio[1], **Fabienne Gourand**[1]

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356 *IN VITRO* AND *IN VIVO* CHARACTERIZATION OF CT26-MNIS TUMOR CELL LINE

Sven Saniternik[1, 2], Markus Schütz[1, 2], Xenia Kovalyk[1, 2], Jannika Jönsson[1, 2], Holger Grüll[1, 2]

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357 EVALUATION OF AN [^{18}F]ANTAGOMIR-223 PET PROBE FOR IMAGING NEUROINFLAMMATION IN MULTIPLE SCLEROSIS

Simon Zientek[1], Nisha K. Ramakrishnan[1], Maha Alfaidi[1], Wei-Li Kuan[1], Craig S. Moore[2], Alyson Fournier[3], Franklin Aigbirhio[1], Stephen Thompson[1], Selena Milicevic Sephton[1]

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[3] McGill University, Montreal Neurological Institute, Montreal, Canada

358 LONGITUDINAL [^{18}F]RO948 TAU PET STUDY IN A RAT MODEL OF ALZHEIMER'S DISEASE.

Oscar Moreno[1], Abraham Martín[2, 3], Michael Schöll[4], Jordi Llop[1]

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[2] Achucarro Basque Centre for Neuroscience, Science Park UPV/EHU, Leioa, Spain

[3] Ikerbasque, Basque Foundation for Science, Bilbao, Spain

[4] University of Gothenburg, Wallenberg Centre for Molecular and Translational Medicine and the Department of Psychiatry and Neurochemistry, Gothenburg, Sweden

359 SYNTHESIS AND PHYSICO-CHEMICAL STUDY OF TWO NOVEL OCTADENTATE BISPIDINE-BASED TB(III) COMPLEXES FOR USE AS THERANOSTIC PROBES.

Lucas Petitpoisson[1], Anli Mahamoud[1], Valérie Mazan[2], Olivier Jeannin[3], Maryame Sy[1], Loïc Charbonnière[1], Mourad Elhabiri[2], Aline Nonat[1]

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[3] Université de Rennes, Institut des Sciences Chimiques de Rennes, CNRS, UMR 6226, Rennes, France

360 FROM ABIOTIC SIDEROPHORES TO SPECT IMAGING: RADIOLABELING STUDIES

Julien Leenhardt[1, 3], Alexandre Biguet Petit Jean[2], Florian Raes[1], Emilien Nguessan[1], Marlene Debiossat[1], Clemence André[1], Catherine Ghezzi[1], Alexis Broisat[1], Pascale Perret[1], Amaury du Moulinet d'Hardemare[3]

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[3] Université Grenoble Alpes, Department of Molecular Chemistry, Saint Martin d'Hères, France

361 MICROFLUIDIC SYNTHESIZER IMIDEV™ FOR THE PRODUCTION OF PET-RADIOTRACERS

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[2] PMB-Alcen, Peynier, France

362 PET IMAGING OF MOONTAG REPORTER BASED ON A ^{68}GA-LABELED MOON-NANOBODY TRACER

Jennifer Dabel[1], Katharina Höffgen[2], Christian Konken[1, 3], Dominic Depke[1], Sven Hermann[1], Sonja Schelhaas[1], Henning Mootz[2], Michael Schäfers[1, 3]

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OPTOACOUSTIC, ULTRASOUND, MULTIMODAL | PROBES/REPORTER GENES | PW09

Kai Licha (Berlin, Germany); **Andre Stiel** (Munich, Germany)

390 HYBRID MOLECULAR PROBES FOR PHOTOACOUSTIC IMAGING

Alexander Cook[1], Nikita Kaydanov[1], Begona Ugarte-Uribe[1], Robert Prevedel[1], Claire Deo[1]

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391 SIGNIFICANCE OF VARIOUS CATEGORIES OF CAPPING AGENT ON PHOTOTHERMAL AND PHOTOACOUSTIC PROPERTIES OF COVELLITE NANOPROBES.

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392 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]

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393 DEVELOPMENT OF NEW RADIOLABELING STRATEGIES FOR LIPID-SHELL MICROBUBBLE RADIOFLUORINATION TOWARDS BIMODAL PET/US IMAGING APPLICATIONS

Julen Ariztia[1], Ambre Dauba[1], Anthony Novell[1], Anthony Delalande[2], Bertrand Kuhnast[1]

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394 HIGH-FREQUENCY ULTRASOUND AND PHOTOACOUSTIC MONITORING OF POLY-L-LYSINE COATED POLYPYRROLE NANOPARTICLES IN HEALTHY AND TUMOR MICE

Petr Matouš[1], **Peter Keša**[3], Monika Paúrová[4, 6], Eva Pokorná[5], Pavel Klener[5], Tomáš Heizer[1], Dana Mareková[2], Karolína Turnovcová[2], Philippe Trochet[3], Luděk Šefc[1], Michal Babič[4, 6]

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[6] BIOCEV, BIOCEV, Vestec, Czech Republic

395 OPTICAL AND ACOUSTIC CHARACTERISATION OF MULTIMODAL CONTRAST AGENTS FOR COLORECTAL CANCER LYMPH NODE DETECTION

Georgia Adam[1], Vladimir Denisov[2], Zahra Rattray[3], Adrian Thomson[4], Tomas Janson[2], Susan Moug[5], Susan Farrington[6], Carmel Moran[4], **Helen Mulvana**[1]

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396 AZA-BODIPY NANOSTRUCTURES AS CONTRAST AGENTS FOR MULTISPECTRAL OPTOACOUSTIC TOMOGRAPHY (MSOT)

Shivadharshini Kuberasivakumaran[1], Antonia Albers[2], Jonas Matern[2], Gustavo Fernández[2], Christiane Geyer[1], Cornelius Faber[1], Anne Helfen[1], Max Masthoff[1]

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397 SYNTHESIS OF NITROXIDE-FUNCTIONALIZED CYANINE DERIVED DYES AS SWITCHABLE REDOX-RESPONSIVE PROBES FOR PHOTOACOUSTIC IMAGING

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398 DUAL LABELING OF LOW-DENSITY LIPOPROTEINS TO IMAGE AND CHARACTERIZE ATHEROSCLEROSIS WITH ELEVATED LDL UPTAKE

Malorie Privat[1], Honorine Jardel[2, 3], Elisa Chazeau[1, 4, 5], Cindy Racoeur[4, 5], Adrien Dubois[1], Pierre-Simon Bellaye[6], Bertrand Collin[6], Alexandre Dias[6], Naig Le Guern[2, 3], Victor Goncalves[1], Mathieu Moreau[1], Catherine Paul[4, 5], Christine Goze[1], Franck Denat[1], Thomas Gautier[2, 3]

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INTERVENTIONAL IMAGING | PW10

Elnaz Yaghini (London, UK); **Stefano Giuliani** (London, UK)

440 PERFORMANCE EVALUATION OF THE FIS-00 HIGH-DEFINITION FLUORESCENCE CAMERA PROTOTYPE DURING 599 HYBRID SENTINEL NODE PROCEDURES

Tessa Buckle[1, 2, 4], Daphne Rietbergen[1], Sergi Vidal-Sicart[3], Baris Karakullukcu[4], Oscar Brouwer[2], Fijs van Leeuwen[1, 2, 4]

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441 IMPI – HUMAN-SIZED INTERVENTIONAL MAGNETIC PARTICLE IMAGING SCANNER

Patrick Vogel[1], Martin Rückert[1], Teresa Reichl[1], Johanna Günther[1], Alexander von Boehn[1], Thomas Kampf[1, 3], Thorsten Bley[2], Volker Behr[1], Stefan Herz[2]

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442 USE OF NIR-II AZA-BODIPYS FOR FLUORESCENCE GUIDED SURGERY ON ENT CANCER MURINE MODEL

Christol Fabre[1, 2], Amelie Godard[1, 3], Mohamed Bendellaa[1], Benoit Busser[1, 2], Jean Luc Coll[1], Ewen Bodio[3], Christine Goze[3], Lucie Sancey[1]

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443 USE OF NIR-II AZA-BODIPYS FOR FLUORESCENCE-GUIDED SURGERY OF CANCERS

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444 A SYSTEMATIC COMPARISON OF FLUORESCENT IMAGING IN THE NIR AND SWIR SPECTRAL RANGE USING CLINICAL TUMOR SAMPLES CONTAINING CETUXIMAB-IRDYE800CW

Bas Keizers[1, 2], Thomas Nijboer[3], Floris Voskuil[3, 4], Marius van den Heuvel[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]

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445 INFLUENCE OF THE POSITION OF THE DISULFONATED FLUORESCENT DYE IN ^{99M}TC-LABELED HYBRID PSMA LIGANDS

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446 SAFETY ASSESSMENT OF FLUORESCENCE-LABELED ANTI-EGFR NANOBODY IN HEALTHY DOGS

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447 LAPAROSCOPE IMAGE-BASED SENSING AREA VISUALIZATION OF A TETHERED LAPAROSCOPIC GAMMA PROBE AND JOINT-TASK LEARNING FOR SENSING AREA LOCALISATION

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448 FLUORESCENT GUIDED SURGERY IN PENILE CARCINOMA USING CETUXIMAB-800CW

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449 BIOLOGICAL EVALUATION OF INNOVATIVE AZA-GADIPY NIR-FLUOROPHORES

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450 STEERABLE DETECTOR FOR ROBOT-ASSISTED SURGERY – A HYBRID MODALITY FOR SIMULTANEOUS RADIO- AND FLUORESCENCE-GUIDANCE

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451 INTRAOPERATIVE MAGNETIC SEED IDENTIFICATION VIA FREEHAND 3D IMAGING

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452 DETECTION OF CENTRAL LYMPH NODE METASTASES IN THYROID CANCER USING BEVACIZUMAB-IRDYE800CW ENHANCED MOLECULAR FLUORESCENCE GUIDED SURGERY

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453 INDOCYANINE GREEN ANGIOGRAPHY FOR PREDICTING HYPOPARATHYROIDISM AFTER TOTAL THYROIDECTOMY: A PHASE II STANDARDIZATION AND QUANTIFICATION STUDY

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CARDIOVASCULAR & RESPIRATORY FUNCTIONS | SYSTEM & CELL BIOLOGY | PW11

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520 POSITRONIUM LIFETIME SPECTROSCOPY MEASUREMENTS ON FIBRIN CLOTS

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521 3D VIRTUAL HISTOPATHOLOGY AS PROVIDED BY SYNCHROTRON-BASED X-RAY PHASE-CONTRAST IMAGING: A CARDIAC CLINICAL APPLICATION

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522 MAGNETOFLUORESCENT NANOPARTICLE IMAGING OF MACROPHAGES PROVIDES AN INFLAMMATION BIOMARKER FOR ADVERSE DIABETIC INFARCT HEALING

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523 MOLECULAR MAGNETIC RESONANCE IMAGING (MRI) OF MYELOPEROXIDASE ACTIVITY TO DISTINGUISH PLAQUES PRONE TO TRIGGER-INDUCED THROMBOSIS IN A RABBIT MODEL OF ATHEROTHROMBOSIS

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524 MOLECULAR MAGNETIC RESONANCE IMAGING OF CARDIAC INFLAMMATION USING MPIO-AVCAM-1.

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525 RADIOSYNTHESIS AND BIOLOGICAL EVALUATION OF [^{18}F]GE180, A TSPO TRACER FOR PET IMAGING ASSESSED POST-MYOCARDIAL INFARCTION

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526 LONGITUDINAL MONITORING OF BIOHYBRID TISSUE-ENGINEERED VASCULAR PROSTHESIS REMODELING BY HYBRID $^{1}H/^{19}F$ MRI

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527 POSITIVE MRI CONTRAST AND PET NANOTRACER FOR THE LONGITUDINAL CHARACTERISATION OF VASCULAR CALCIFICATIONS IN ATHEROSCLEROSIS

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

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529 PET IMAGING TO MEASURE PULMONARY MRP1 INHIBITION BY INHALATION DRUGS

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530 IMPROVING THE IMAGE RESOLUTION OF SINGLE BREATH HOLD DISSOLVED PHASE ^{129}XE IMAGES

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

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532 IMAGING INTRAVASCULAR MACROPHAGES BY MRI USING MICRO-SIZED PARTICLES OF IRON OXIDE

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IMMUNE RESPONSE & INFLAMMATION | PW12

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620 PRECLINICAL PET/CT IMAGING OF COLON-INFILTRATING CD4+ T CELLS WITH ^{89}ZR-DF-IAB46 IN A DEXTRAN SODIUM SULFATE-INDUCED MOUSE MODEL OF ACUTE AND CHRONIC ULCERATIVE COLITIS

Julia Baguña Torres[1], Álvaro Valverde Moya[1], Itziar Busquets Sáez[1], Noemí Gómez Lado[2, 3], Xurxo García Otero[2, 3], Lara García-Varela[2, 3], Johanna Troya-Balseca[1], Carolina Aparicio-Gómez[1], Jana Vidal Otero[1], Santiago Aguadé Bruix[1], Pablo Aguiar Fernández[2, 3], José Raúl Herance Camacho[1]

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621 A PH-SENSITIZER CAN IMPROVE CANCER IMMUNOTHERAPY TREATMENT AS MONITORED WITH ACIDOCEST MRI

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622 PET STUDY OF INTRAVITREAL ADALIMUMAB PHARMACOKINETICS IN AN UVEITIS RAT MODEL

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623 OPTIMIZING MACROPHAGE TRACKING TO SERVE AS AN INFLAMMATION MARKER FOR IN VIVO IMAGING

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624 SYSTEMATIC REVIEW AND META-ANALYSIS OF ULTRASOUND-INDUCED IMMUNE EFFECTS IN PERIPHERAL TUMORS: PRELIMINARY RESULTS

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625 POSITRON EMISSION TOMOGRAPHY-BASED IN-VIVO IMAGING OF TISSUE RESPONSES IN THE COCHLEAR IMPLANTED GUINEA PIG

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626 TRANSIENT HIGH-SALT INTAKE AGGRAVATES ANGIOTENSIN II INDUCED VASCULAR INFLAMMATION

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627 ATTENUATED COLON INFLAMMATION IN MICE AFTER ADMINISTRATION OF NANOPARTICLES CARRYING ANTI-P65 NF-KB SIRNA

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628 [^{89}ZR]DF-CREFMIRLIMAB PET/CT IMAGING TO ASSESS THE IN VIVO DISTRIBUTION OF CD8+ T-CELLS IN HOSPITALIZED COVID-19 PATIENTS

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629 INVESTIGATING THE NEUROPROTECTIVE POTENTIAL OF INTERLEUKIN-1 RECEPTOR ANTAGONIST AFTER SOMAN EXPOSURE

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630 IMMUNO-MPI: IN VIVO MAPPING OF THE NEUROIMMUNE RESPONSE USING LEUCOCYTE-MIMICKING PARTICLES.

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631 A BIOLUMINESCENT T CELL REPORTER MOUSE MODEL FOR TESTING THERAPEUTIC COMBINATIONS THAT INDUCE AN IMMUNE RESPONSE IN PDAC

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632 IN VIVO TRACKING OF LABELLED MACROPHAGES IN MICE WITH X-RAY FLUORESCENCE IMAGING

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633 IMMUNO-PET WITH [^{89}ZR]-DFO-ANTI-TNF-A IN A MURINE MODEL OF INFLAMMATORY BOWEL DISEASE

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634 ESTABLISHING A BIOPHOTONIC SIGNALING PLATFORM TO FOLLOW UP TO 100,000 CELLS IN SPACE AND IN TIME OVER LONG PERIODS OF TIME

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635 NONINVASIVE MONITORING OF THE IMMUNE CELL ACTIVATION IN A MURINE MODEL OF DIET-INDUCED NON-ALCOHOLIC STEATOHEPATITIS USING THE DEOXYCYTIDINE ANALOGUE [^{18}F]FAC PET/MRI

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METABOLISM I | PW13

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700 METABOLIC DIFFERENTIATORS OF SMALL CELL NEUROENDOCRINE VERSUS ADENOCARCINOMA SUBTYPES OF CASTRATION-RESISTANT PROSTATE CANCER USING PATIENT DERIVED XENOGRAFTS

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701 MYOREP: A NOVEL REPORTER SYSTEM TO DETECT EARLY MUSCLE ATROPHY *IN VIVO*

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702 THE IMPACT OF 2-[^{18}F]FDG METABOLISM: ORGAN "FINGERPRINTING" AND THE ROLE OF THE PENTOSE PHOSPHATE PATHWAY

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703 THE ASSOCIATION OF CITRATE AND SPERMINE IN PROSTATIC FLUID IN PHANTOMS AND IN HUMANS

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704 STRUCTURAL CHANGES IN THE MYOCARDIUM OF TYPE 2 PATIENTS

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705 QUANTITATIVE DIXON IMAGING AND SPECTROSCOPY TO CHARACTERISE EARLY ALTERATIONS IN LIVER FAT IN A NOVEL MODEL OF DIET-INDUCED MAFLD

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706 PROTEOME ANALYSIS OF HYPER- AND NORMOGLYCEMIC EXTRACELLULAR VESICLES FROM PANCREATIC CELLS

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707 MAGNETIC RESONANCE IMAGING OF IRON IN A PREGNANT MOUSE MODEL OF IRON DEFICIENCY ANEMIA (IDA)

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708 DETECTION OF GLUCOSE-DERIVED D- AND L-LACTATE IN ERYTHROCYTES AND CANCER CELLS BY USE OF A CHIRAL NMR SHIFT REAGENT

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IMAGING DE-/REGENERATION | BIOLOGY | PW14

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800 PROBING STRUCTURAL MUSCLE MODIFICATIONS DURING AGING VIA PSHG MEASUREMENTS ANALYSIS

Vassilis Tsafas[1, 2], Konstantina Giouroukou[1, 2], Konstantinos Kounakis[3, 4], Meropi Mari[1], Costas Fotakis[1, 2], Nektarios Tavernarakis[3, 4], George Filippidis[1]

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801 LONGITUDINAL, IN-VIVO FUNCTIONAL AND MOLECULAR IMAGING TO CHARACTERIZE NEURODEVELOPMENT FROM INFANTILE TO ADULT AGE IN WILD-TYPE MICE.

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802 DEEP LEARNING-BASED SEGMENTATION OF TROPHOBLAST ORGANOID CULTURES VIA 3D OPTICAL COHERENCE MICROSCOPY

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803 MRI AND QUANTITATIVE SUSCEPTIBILITY MAPPING TO ELUCIDATE THE 3D STRUCTURE OF EX VIVO HUMAN PLACENTA

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804 TARGETED FLUORESCENCE IMAGING USING BEVACIZUMAB-800CW WITHIN NEOVASCULAR AGE-RELATED MACULAR DEGENERATION (AMD) PATIENTS TO EVALUATE THE UPREGULATION OF VEGF

Pia Volkmer[1], Iris Schmidt[1], Kim Westra[2], Janine Polman[2], Stefan Ouwerkerk[2], Liberata Uwantege[2], Rogier Muskens[2], Angela Huiskamp[2], Wouter Nagengast[1]

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805 MULTI-MODAL EVALUATION OF NEURONAL INTEGRITY IN THE VISUAL PATHWAY AFTER RETINAL DEGENERATION

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806 LONGITUDINAL MULTI-TRACER MOLECULAR IMAGING IN CCL_4-INDUCED LIVER FIBROSIS IN MICE

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807 INTRAVITAL MICROSCOPY TO EVALUATE THE THERAPEUTIC EFFECTS OF PHOTOBIOMODULATION IN A RODENT MODEL OF MULTIPLE SCLEROSIS

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808 EPR OXYGEN IMAGING OF BETA CELL REPLACEMENT DEVICES FOR TYPE I DIABETES CURE

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809 LONGITUDINAL EVALUATION OF THE THERAPEUTIC EFFECT OF APRIL IN THE CUPRIZONE MOUSE MODEL OF MULTIPLE SCLEROSIS

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RADIOMICS, MACHINE LEARNING & AI | PW15

Robert Gatenby (Tampa, USA); **Michael Gardermayr** (Salzburg, Austria)

900 TUMOR PREDICTION USING MACHINE LEANING TRAINED ON DYNAMIC FDG-PET OF EXTRA-TUMORAL ORGANS.

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901 GLIOMA GRADING USING DYNAMIC FET-PET/MRI AND MACHINE LEARNING

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902 DEEP LEARNING-BASED AUTOMATED LESION SEGMENTATION ON MOUSE STROKE MAGNETIC RESONANCE IMAGES

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903 DATA-DRIVEN QUANTITATIVE PHOTOACOUSTIC IMAGING WITH TISSUE-MIMICKING COPOLYMER-IN-OIL PHANTOMS

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904 4D FLOW MRI DATA ASSIMILATION: CFD ASSISTED PROCESSING AND QUANTIFICATION FOR EFFICIENT BIOMARKERS PREDICTION IN PORCINE PULMONARY ARTERY FOR DIFFERENT SPECTRUMS OF ARDS CONDITION.

Rahul Kumar[1], Angel Gaìtan Simon[2], Karen López-Linares Román[3], Maialen Stephens[3], Fernando Suarez Sippman[5], Arnoldo Santos Oviedo[4], Marco Ellero[6], Jesus Ruiz Cabello[1]

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905 METABOLIC-ASSOCIATED FATTY LIVER VOXEL-BASED QUANTIFICATION ON CT IMAGES USING A CONTRAST ADAPTED AUTOMATIC TOOL

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906 ESTIMATION OF PHOTON'S INTERACTION POSITION IN PLASTIC SCINTILLATOR WITH THE WLS STRIPS READOUT USING ARTIFICIAL NEURAL NETWORKS

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907 A MACHINE LEARNING MODEL FOR PREDICTION OF CHEMOTHERAPY RESISTANCE IN MALIGNANT PLEURAL MESOTHELIOMA

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908 AN AUTOMATED AND TRACER-INDEPENDENT TOOL FOR THE GENERATION OF A TOTAL-BODY PET/CT NORMATIVE DATABASE TO SERVE AS A REFERENCE FOR PATIENT ANALYSIS

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909 CONVOLUTIONAL NEURAL NETWORK FOR THE SEMANTIC SEGMENTATION OF COMPUTED TOMOGRAPHY IMAGES OF THE GOLDFISH HEART

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910 HOW TO PRODUCE AND VERIFY RELIABLE MRI DATA: A SHARED USER/VENDOR PERSPECTIVE AND PROTOCOL

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911 UNSUPERVISED MACHINE LEARNING TO EVALUATE THERAPEUTIC OUTCOME IN ISCHEMIC STROKE

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912 AI-ASSISTED IMAGE ENHANCEMENT FRAMEWORK FOR MULTI-FREQUENCY PHOTOACOUSTIC IMAGING

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913 DEEP LEARNING BASED T2 DISTRIBUTION ESTIMATION FOR BONE MARROW CHARACTERIZATION IN INFLAMMATION AND AGING

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914 MACHINE LEARNING FRAMEWORK ON MULTIMODAL MRI DATA DIFFERENTIATES CHRON'S DISEASE PATIENTS FROM HEALTHY CONTROLS BY BRAIN FUNCTION.

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915 APPLICATION OF UNSUPERVISED LEARNING TECHNIQUES TO ^{18}F-FDG-PET-DERIVED IMAGING BIOMARKERS ASSOCIATED WITH INSULIN RESISTANCE FOR TYPE 2 DIABETES PHENOTYPING

Itziar Busquets Sáez[1], Julia Baguña Torres[1], Mayra Velásquez Arévalo[2], Cristina Hernández Pascual[2, 3], Clara Ramírez Serra[4], Albert Roque Pérez[1], Carolina Aparicio-Gómez[1], Maria Nazarena Pizzi[1], Joan Castell Conesa[1], Rafael Simó Canonge[2, 3], Santiago Aguadé Bruix[1], José Raul Herance Camacho[1, 5]

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MRS/HYPERPOLARIZATION TECHNOLOGIES | PW16

Franz Schilling (Munich, Germany); **Joseph Ackerman** (St. Louis, USA)

1015 RAT ANGIOGRAPHY FROM FAR AWAY: DESIGN AND PERFORMANCE OF A SMALL BATH CRYOSTAT WITH NMR CAPABILITY FOR TRANSPORT OF HYPERPOLARIZED SAMPLES.

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1016 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

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1017 POLARIZATION TRANSFER PULSE SEQUENCE FOR [2-^{13}C] LACTATE THAT INHERENTLY ELIMINATES J-COUPLING ARTEFACTS

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1018 METABOLIC TUMOR IMAGING WITH RAPIDLY SIGNAL-ENHANCED 1-^{13}C-PYRUVATE-D3

Theresa Hune[1, 2], Salvatore Mamone[1, 2], Henning Schroeder[1, 2], Anil Jagtap[1, 2], Sonja Sternkopf[1, 2], Gabriele Stevanato[1, 2], Sergey Korchak[1, 2], Claudia Fokken[3], Christoph Müller[4, 5], Andreas Schmidt[4, 5, 6], Dorothea Becker[3], Stefan Glöggler[1, 2]

[1] Max Planck Institute for Multidisciplinary Sciences, NMR Signal Enhancement Group, Göttingen, Germany

[2] Center for Biostructural Imaging of Neurodegeneration of the University Medical Center Göttingen, Göttingen, Germany

[3] Max Planck Institute for Multidisciplinary Sciences, Department of NMR-based Structural Biology, Göttingen, Germany

[4] German Cancer Research Center (DKFZ), German Cancer Consortium (DKTK), partner site Freiburg, Heidelberg, Germany

[5] University of Freiburg, Division of Medical Physics, Department of Radiology, Freiburg, Germany

[6] Karmanos Cancer Institute (KCI), Wayne State University, Intergrative Biosciences (Ibio), Department of Chemistry, Detroit, United States of America

1019 SYNTHESIS OF NANOCONFINED UNCONVENTIONAL DDNP AGENTS FOR MRI

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

[1] Max Planck Institute for Polymer Research, Mainz, Germany

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

1020 BENCHTOP NMR FOR LAB-ON-A-CHIP

Marc Azagra[1], Alejandro Portela[1], Hetal Patel[2], Dian Weerakonda[2], Jose Yeste[1], Alba Herrero[1], Matthew Fallon[2], Megdouda Benamara[3], Marc Dubois[3], Tryfon Antonakakis[3], Javier Ramon[1], Irene Marco-Rius[1]

[1] Institute for Bioengineering of Catalonia, Barcelona, Spain

[2] Oxford Instruments, Abingdon, United Kingdom

[3] Multiwave Imaging, Marseille, France

1022 DEVELOPMENT OF A HP-MR COMPATIBLE BIOREACTOR FOR REAL-TIME METABOLIC ANALYSIS OF 3D CELL MODELS IN A 60 MHZ BENCHTOP NMR SPECTROMETER

Lluís Mangas-Florencio[1], Alba Herrero-Gómez[1], James Eills[1], Marc Azagra[1], Irene Marco-Rius[1]

[1] Institute for Bioengineering of Catalonia, The Barcelona Institute for Science and Technology, Barcelona, Spain

1023 SABRE-BASED NUCLEAR HYPERPOLARIZATION OF THE ANTIVIRAL PRODRUG FAVIPIRAVIR

Markus Plaumann[1], Isabell Prediger[1], Felix Mysegaes[1], John Myers[2], Nicolas Kempf[3], Charbel Assaf[4], Johannes Bernarding[1], Andrey Pravdivtsev[4], Rainer Körber[2], Kai Buckenmaier[3]

[1] Otto-von-Guericke University, Medical Faculty, Institute of Biometry and Medical Informatics, Magdeburg, Germany

[2] Physikalisch-Technische Bundesanstalt, Department 'Biosignals', Berlin, Germany

[3] Max Planck Institute for Biological Cybernetics, High-Field Magnetic Resonance Center, Tübingen, Germany

[4] University Medical Center Kiel, Section Biomedical Imaging, Molecular Imaging North Competence Center (MOIN CC), Kiel, Germany

1024 ASSESSMENT OF PORCINE LIVER METABOLISM AFTER ALANINE INFUSION USING HYPERPOLARIZED [1-^{13}C]PYRUVATE MRI

Uffe Kjærgaard[1], Zheng Ye[2], Esben Hansen[1], Mohsen Redda[1], Peter Eriksen[3], Hendrik Vilstrup[3], Michael Ohliger[4], Christoffer Laustsen[1]

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

[2] Sichuan University, Department of Radiology, West China Hospital, Sichuan, China

[3] Aarhus University, Department of Hepatology and Gastroenterology, Aarhus University Hospital, Aarhus, Denmark

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

1025 INVESTIGATION OF HYPERPOLARIZATION TECHNIQUES FOR IN VIVO ULTRALOW-FIELD MR

Kai Buckenmaier[1], Nicolas Kempf[1], Jörn Engelmann[1], Micheal Beyerlein[1], Friedemann Bullinger[1], Rainer Körber[2], Alexey Chubarov[3], Igor A. Kirilyuk[4], Jeremiah Gassensmith[5], Thomas Theis[6], Klaus Scheffler[1], Andrey Pravdivtsev[7], Markus Plaumann[8], Andre F. Martins[9, 10, 11]

[1] Max Planck Institute for Biological Cybernetics, High-Field Magnetic Resonance Center, Tübingen, Germany

[2] Physikalisch-Technische Bundesanstalt, Department 'Biosignals', Berlin, Germany

[3] Institute of Chemical Biology and Fundamental Medicine, Novosibirsk, Russian Federation

[4] Novosibirsk State University, Institute of Organic Chemistry, Novosibirsk, Russian Federation

[5] The University of Texas at Dallas, Department of Chemistry and Biochemistry, Texas, United States of America

[6] North Carolina State University, Departments of Chemistry, Physics, and Biomedical Engineering, Raleigh, United States of America

[7] University Medical Center Kiel, Section Biomedical Imaging, Molecular Imaging North Competence Center (MOIN CC), Kiel, Germany

[8] Otto-von-Guericke University, Medical Faculty, Institute of Biometry and Medical Informatics, Magdeburg, Germany

[9] Eberhard Karls University of Tübingen, Werner Siemens Imaging Center, Department of Preclinical Imaging and Radiopharmacy and Cluster of Excellence, Tübingen, Germany

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

[11] German Cancer Research Center (DKFZ), German Cancer Consortium (DKTK), partner site Freiburg, Heidelberg, Germany

1026 INVESTIGATING THE USE OF HYPERPOLARIZED [^{15}N]UREA AS A POTENTIAL REPLACEMENT FOR GADOLINIUM CONTRAST AGENTS FOR MEASURING TISSUE PERFUSION

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

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

[2] GE Healthcare, Chalfont St Giles, United Kingdom

1027 HYPERPOLARIZED [1-^{13}C]PYRUVATE MAGNETIC RESONANCE SPECTROSCOPY SHOWS THAT AGMATINE INCREASED LACTATE PRODUCTION IN THE BRAIN OF TYPE 2 DIABETIC MICE

Young-Suk Choi[1], **Ho-Taek Song**[1]

[1] Yonsei University Collage of Medicine, Radiology, Severance Hospital, Seoul, Republic of Korea

MULTI-MODAL & HYBRID TECHNOLOGIES (INCL. PET/ SPECT) | PW17

Thomas Beyer (Vienna, Austria); **Anu Airaksinen** (Turku, Finland)

1100 AN ADVANCED 3D-PRINTED ANTHROPOMORPHIC PHANTOM FOR THE MULTIMODALITY IMAGING OF CT, MRI, ULTRASOUND AND PHOTOACOUSTIC CALIBRATION

Valeria Grasso[1, 2], Marwa Chaabane[3], Christina Yiannakou[4], Martin Meier[4], Bruno Koller[3], Regine Willumeit-Römer[2, 5], Jithin Jose[1]

[1] FUJIFILM VisualSonics, Amsterdam, Netherlands

[2] Christian-Albrecht University of Kiel, Kiel, Germany

[3] SCANCO Medical, Bruettisellen, Switzerland

[4] Hannover Medical School, Hannover, Germany

[5] Helmholtz-Zentrum Hereon GmbH, Geesthacht, Germany

1101 JPET FOR PROTON BEAM RANGE MONITORING IN PROTON RADIOTHERAPY

Jakub Baran[1, 2, 3], Szymon Niedźwiecki[1, 2, 3], Aleksander Gajos[1, 2, 3], Grzegorz Korcyl[1, 2, 3], Jan Gajewski[4], Antoni Ruciński[4], Paweł Moskal[1, 2, 3], On behalf of the J-PET Collaboration[1]

[1] Jagiellonian University, Faculty of Physics, Astronomy and Applied Computer Science, Cracow, Poland

[2] Jagiellonian University, Total-Body Jagiellonian-PET Laboratory,, Cracow, Poland

[3] Jagiellonian University, Center for Theranostics, Cracow, Poland

[4] Institute of Nuclear Physics Polish Academy of Sciences, Cracow, Poland

1102 MODULAR J-PET - A COST EFFECTIVE PET SCANNER PROTOTYPE

Szymon Niedzwiecki[1, 2, 3], Grzegorz Korcyl[1, 2, 3], Krzysztof Kacprzak[1, 2, 3], Aleksander Gajos[1, 2, 3], Eryk Czerwinski[1, 2, 3], Jakub Baran[1, 2, 3], Wojciech Krzemien[4], Ewa Stepien[1, 2, 3], Pawel Moskal[1, 2, 3], On behalf of the J-PET Collaboration[2]

[1] Jagiellonian University, Faculty of Physics, Astronomy and Applied Computer Science, Krakow, Poland

[2] Jagiellonian University, Total-Body Jagiellonian-PET Laboratory, Krakow, Poland

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

[4] National Centre for Nuclear Research, High Energy Physics Division, Otwock, Poland

1103 A NOVEL SIMULTANEOUS (^{18}F)-FDG PET/GLUCOCEST-MRI PROTOCOL PROVIDES INSIGHTS INTO GLUCOSE METABOLISM AND ENABLES MOLECULAR SUBTYPING OF BREAST CANCER

Silvester Bartsch[1], Joachim Friske[1], Daniela Laimer-Gruber[1], Thomas Wanek[1], Thomas Helbich[1], Katja Pinker[2, 1]

[1] Medical University of Vienna, Depratment of Biomedical Imaging and Image-guided Therapy, Division of Structural and Molecular Preclinical Imaging, Vienna, Austria

[2] Memoral Sloan Kettering Cancer Center, Department of Radiology, Breast Imaging Service, New York, United States of America

1104 NOVEL PRECLINICAL SIMULTANEOUS PET/MRI SYSTEM: IMAGE QUALITY WITH F18, CU64, GA68 AND FIRST IN VIVO VALIDATION

Deborah Hill[1], Morten Karlsen[2], Marius Widerøe[1], Cesar Molinos[3], Carlos Correcher[3], Emilio Gimenez[3], Mette Lauritzen[3], Antonio Gonzalez[4], Michael Heidenreich[3]

[1] NTNU, Department of Circulation and Medical Imaging Faculty of Medicine and Health Sciences, Trondheim, Norway

[2] St. Olavs Hospital, Trondheim University Hospital, Department of Radiology and Nuclear Medicine, Trondheim, Norway

[3] Bruker BioSpin, Preclinical Imaging, Ettlingen, Germany

[4] CSIC & Universitat Politècnica de València, Instituto de Instrumentation para Imagen Molecular, Valencia, Spain

1105 NOVEL OPAQUE LIQUID SCINTILLATOR DETECTION TECHNOLOGY FOR PET IMAGING

Adrien Hourlier[1], Alexandra Dahmane[1], David Brasse[1]

[1] Université de Strasbourg, CNRS, IPHC UMR 7178, Strasbourg, France

1107 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

1108 QUANTITATIVE METHODS USING LONG-LIVED PHANTOMS TO CROSS-CALIBRATE PRECLINICAL AND CLINICAL PET SCANNERS FOR CO-CLINICAL IMAGING TRIALS

Adrienne Lehnert[1], Robert Miyaoka[1], Mark Muzi[1], Delphine Chen[1], Christina Baik[1], A. McGarry Houghton[2], **Paul Kinahan**[1]

[1] University of Washington, Seattle, United States of America

[2] Fred Hutchinson Cancer Center, Seattle, United States of America

1109 TOWARDS SUB-MILLIMETRIC SPATIAL RESOLUTION USING A HIGH SENSITIVITY ROTATING SLAT COLLIMATOR SPECT PROTOTYPE

Frederic Boisson[1, 2], Adrien Hourlier[1, 2], Virgile Bekaert[1, 2], Nicolas Chevillon[1, 2], Christian Fuchs[1, 2], David Brasse[1, 2]

[1] Institut Pluridisciplinaire Hubert Curien, Strasbourg, France

[2] CNRS - UMR7178, Strasbourg, France

1110 MULTIMODALITY PET AND NEAR-INFRARED FLUORESCENCE INTRAOPERATIVE IMAGING OF CEA-POSITIVE COLORECTAL CANCER.

Paul Yazaki[1], Thinzar Lwin[2], Tove Olafsen[5], Erasmus Poku[4], Michael Bouvet[3], John Shively[1]

[1] Beckman Research Institute, City of Hope, Immunology and Theranostics, Duarte, United States of America

[2] City of Hope Medical Center, Department of Surgery, Duarte, United States of America

[3] University of California, San Diego, Department of Surgery, San Diego, United States of America

[4] Beckman Research Institute, City of Hope, Radiopharmacy, Duarte, United States of America

[5] Beckman Research Institute, City of Hope, Small Animal Imaging Core, Duarte, United States of America

1111 WHOLE BODY MULTIMODAL IMAGING AND THE ENHANCED QUANTIFICATION OF TISSUE CHROMOPHORES

Dieter Fuchs[1], Caroline O'Riordan[1], Peter Kesa[1], Philippe Trochet[1], Jithin Jose[1]

[1] Fujifilm VisualSonics, Amsterdam, Netherlands

1112 PERFORMANCE CHARACTERIZATION OF THE SAFIR-I PET INSERT ACCORDING TO NEMA NU 4-2008

Pascal Bebié[1], Werner Lustermann[1], Jan Debus[1], Günther Dissertori[1]

[1] ETH Zurich, Institute for Particle Physics and Astrophysics, Zurich, Switzerland

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))
12:00 Poster Session II
Cancer Cells & Heterogeneity | PW20
Cancer Therapy | preclinical II | PW21
Translational/Clinical Studies in Oncology | PW22
Brain Function & Cognition | PW23
Brain Metabolism, Microstructure & Anatomy I | PW24
MRI & MPI I| Probes/Reporter Genes | PW25
PET/SPECT, Radionuclide, X-Ray, CT II | Probes/Reporter Genes | PW26
Image-Guided Drug Delivery | PW27
Design & Application of (Radio)Theranostics | PW28
Cardiac and Pulmonary Diseases | Tissue Remodeling | PW29
Imaging of Infection | PW30
Metabolism II | PW31
Processing, Reconstruction, Segmentation & Quantification | PW32
Ultrasound & Optoacoustic Technologies | PW33
MRI Technology | PW34
X-Ray based Technologies | PW35
Tissue Omics & Optical Technologies | PW36
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

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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POSTER SESSION II

ATTENTION: There is a change of hard copy posters that are hung up, depending on the poster session the poster is scheduled to present:

Case 1 - Poster scheduled to presented in POSTER SESSION I on Wednesday 15 March 2023
Hanging the poster: Tuesday morning
Taking down: right after the poster session on Wednesday.

Case 2 - Poster is scheduled to presented in POSTER SESSION II on Friday 17 March 2023
Hanging the poster: Thursday morning
Taking down: right after the poster session on Friday

All posters are anytime available as digital posters & video-pitches via the EMIM App!

CANCER CELLS & HETEROGENEITY | PW20

John Ronald (London, Canada); **Irina Heid** (Munich, Germany)

115 THE CHICKEN CHORIOALLANTOIC MEMBRANE AS A LOW-COST, HIGH-THROUGHPUT MODEL FOR PET RADIOTRACER DEVELOPMENT.

Lydia Smith[1], Hannah Greenwood[1], Will Tyrrell[1], Richard Edwards[1], Friedrich Baark[1], George Firth[1], Muhammet Tanc[1], Richard Southworth[1], Tim Witney[1]

[1] King's college london, Biomedical engineering and imaging sciences, London, United Kingdom

116 PAIRED [^{89}ZR]-DFO-ANTIVEGF-PET AND [^{18}F]FDG-PET STUDIES IN GLIOBLASTOMA RAT MODELS: DISJOINT PATTERNS OF METABOLISM AND ANGIOGENESIS WITHIN THE TUMOR

Lara García-Varela[1, 2], Jessica Codesido[2], Noemi Gómez-Lado[1], Angela Turrero[3], Daniel Beiroa-Tarrio[4], Ana Isabel Rodríguez-Perez[5, 6], Anxo Vidal[3], Pablo Aguiar[1, 2]

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

[2] University Clinical Hospital, Nuclear Medicine and Molecular Imaging Group, IDIS, Santiago de Compostela, Spain

[3] University of Santiago de Compostela, Cell cycle and Oncology Group (CiCLOn), CIMUS,, Santiago de Compostela, Spain

[4] University of Santiago de Compostela, Centro de Biomedicina Experimental (CEBEGA),, Santiago de Compostela, Spain

[5] University of Santiago de Compostela, Research Center for Molecular Medicine and Chronic diseases (CIMUS), IDIS,, Santiago de Compostela, Spain

[6] Networking Research Center on Neurodegenerative Diseases (CIBERNED), Madrid, Spain

117 DEVELOPMENT OF EFFICIENT TARGETED FLUORESCENT CONJUGATES FOR SELECTIVE DETECTION, LOCALIZATION AND QUANTIFICATION OF THE MULTIDRUG RESISTANCE P-GLYCOPROTEIN (P-GP) IN CANCER CELLS.

Pierre Daumar[1], Maxime Dubois[1], Antoine Goisnard[1], Clémence Dubois[2], Marie Depresle[2], Manon Roux[2], Elodie Gay[1], Frédérique Penault-Llorca[3], Mahchid Bamdad[1], Emmanuelle Mounetou[1]

[1] Université Clermont Auvergne, Institut Universitaire de Technologie, UMR INSERM-UCA, U1240, Imagerie Moléculaire et Stratégies Théranostiques, Clermont-Ferrand, France

[2] BIOMARQUEURS SAS, Aubière, France

[3] Université Clermont Auvergne, Centre de Lutte Contre le Cancer Jean Perrin, UMR INSERM-UCA, U1240, Imagerie Moléculaire et Stratégies Théranostiques, Clermont-Ferrand, France

118 OPTICAL IMAGING OF INTRA- AND EXTRACELLULAR MICRO- AND NANOPLASTIC DURING CELL DIVISION

Ekaterina Schreiber-Brynzak[1], Elisabeth Schögl[1, 2], Klaudia Cseh[3], Verena Kopatz[4, 6], Anton Legin[3], Michael Jakupec[3], José Toca-Herrera[2], Giorgia del Favero[5], Endre Kiss[5], Wolfgang Wadsak[6, 7], Lukas Kenner[4, 6], Verena Pichler[1]

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

[2] Institute of Biophysics, Department of nanobiotechnology, University of Natural Resources and Life Sciences Vienna (BOKU), Vienna, Austria

[3] University of Vienna, Faculty of Chemistry, Institute of Inorganic Chemistry, Vienna, Austria

[4] Medical University of Vienna, Department of Pathology, Vienna, Austria

[5] University of Vienna, Faculty of Chemistry, Department of Food Chemistry and Toxicology and Core Facility Multimodal Imaging, Vienna, Austria

[6] CBmed GmbH, Center for Biomarker Research in Medicine, Graz, Austria

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

119 IMPACT OF LAMIN-MEDIATED NUCLEAR DEFORMABILITY ON CANCER INVASION AND METASTASIS *IN VIVO*

Martin Svoreň[1], Esther Wagena[1], Mariska Lindert[1], Manon Vullings[1], Peter Friedl[1], Katarina Wolf[1]

[1] Radboudumc, Department of Cell Biology, Nijmegen, Netherlands

120 PHOTOACOUSTIC IMAGING AS TOOL TO VISUALIZE TUMOR CHARACTERISTICS IN A HEAD AND NECK SQUAMOUS CELL CARCINOMA MOUSE MODEL

Gerarda van de Kamp[1, 2], Kranthi Panth[1], Tim Heemskerk[1, 2], Ingeborg Nieuwenhuizen-Bakker[1], Jeroen Essers[1, 3, 4]

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

[2] Oncode Institute, Rotterdam, Netherlands

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

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

121 PRENEOPLASTIC BEHAVIOURS IN HEPATOCELLULAR CARCINOMA: CELLULAR AND MOLECULAR TRAITS IN QUIESCENT VERSUS EVOLVING LESIONS

Floriane Cannet[1, 2], Celia Sequera[2], Sylvie Richelme[2], Yannick Boursier[1], Paula Michea[3], Jean-Paul Borg[3, 4], Christian Morel[1], Flavio Maina[2]

[1] Aix-Marseille Univ, CNRS/IN2P3, CPPM, Marseille, France

[2] Aix-Marseille Univ, CNRS/INSB, IBDM, Marseille, France

[3] Aix-Marseille Univ, INSERM, CNRS, CRCM, IPC, Marseille, France

[4] Institut Universitaire de France, Marseille, France

122 BRAIN CANCER EVOLUTION UNDER THE PRISM OF INTRATUMORAL HETEROGENEITY

Maria Tampakaki[1, 2, 3], Eleftheria Tzamali[1], Giorgos Tzedakis[1], Eirini Makrygiannaki[1, 4], Mikis Mylonakis[2, 5], Evangelos Marakis[2], Giannis Zacharakis[2], Vangelis Sakkalis[1], Joseph Papamatheakis[6, 7]

[1] Foundation For Research and Technology-Hellas, Institute of Computer Science, Heraklion Crete, Greece

[2] Foundation For Research and Technology-Hellas, Institute of Electronic Structure and Laser, Heraklion Crete, Greece

[3] University of Zurich, Faculty of Science, Zurich, Switzerland

[4] University of Crete, School of Medicine, Heraklion Crete, Greece

[5] University of Crete, Materials Science and Technology Department, Heraklion Crete, Greece

[6] Foundation For Research and Technology-Hellas, Institute of Molecular Biology and Biotechnology, Heraklion Crete, Greece

[7] University of Crete, Department of Biology, Heraklion Crete, Greece

123 HYPERPOLARIZED ^{13}C NMR AS A POTENTIAL TOOL IN LEUKEMIA CANCER DIAGNOSTICS AND TREATMENT EVALUATION

Nichlas Christensen[1], Christoffer Laustsen[1], Lotte Bertelsen[1]

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

CANCER THERAPY | PRECLINICAL II | PW21

Helen Mulvana (Glasgow, UK); **Freddy E. Escorcia** (Bethesda, USA)

158 TOWARDS DEVELOPMENT OF A MURINE PHANTOM MODEL FOR BIOLOGICAL RANGE VALIDATION IN PROTON BEAMS.

Tim Heemskerk[1, 2], Eva van Oosten[1], Michèle Knol[5], Marta Rovituso[7], Ernst van der Wal[7], Steven Habraken[5, 6], Mischa Hoogeman[5, 7], Jeroen Essers[1, 3, 4]

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

[2] Erasmus University Medical Center, Oncode institute, Rotterdam, Netherlands

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

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

[5] Erasmus University Medical Center, Department or Radiotherapy, Rotterdam, Netherlands

[6] Holland Proton Therapy Center, Department of medical physics & informatics, Delft, Netherlands

[7] Holland Proton Therapy Center, Delft, Netherlands

159 INHALED CISPLATIN INDUCES DOSE-DEPENDENT ANTI-TUMOR ACTIVITY IN VIVO IN AN ORTHOTOPIC LUNG CANCER MODEL

Lionel Larbanoix[1], Tamara Davenne[2], Rémi Rosière[2], Sophie Laurent[1]

[1] UMONS, CMMI, Gosselies, Belgium

[2] InhaTarget Therapeutics, Gosselies, Belgium

160 AN IMMUNOPET PHARMACOKINETIC APPROACH TO ASSESS INTRATUMORAL ANTI-CTLA4 IMMUNOTHERAPY EFFICACY TO THE LOCAL AND THE NON-INJECTED DISTANT TUMOR LESIONS.

Louis Meyblum[1, 2, 3], Céline Chevaleyre[1], Sandrine Susini[3], Benoit Jego[1], Dimitri Kereselidze[1], Aurélien Marabel[3], Thierry De Baere[2], Vincent Lebon[1], Lambros Tselikas[2], Charles Truillet[1]

[1] Université Paris-Saclay, Laboratoire d'Imagerie Biomédicale Multimodale Paris Saclay (BioMaps), Orsay, France

[2] Université Paris-Saclay, Interventional Radiology, Villejuif, France

[3] Université Paris-Saclay, Laboratoire de Recherche Translationnelle en Immunothérapie (LRTI), INSERM U1015, Villejuif, France

161 IMPLEMENTATION OF SYNTHETIC GENETIC LOGIC INTO TUMOR-SPECIFIC THERAPEUTIC MOLECULES EXPRESSION IN *SALMONELLA TYPHIMURIUM*

Hien Ngo[1, 2], Dinh-Huy Nguyen[1], Sung-Hwan You[1], Van Khuynh Nguyen[1, 2], So-young Kim[1], Yeongjin Hong[3], Jung-Joon Min[1, 2, 4]

[1] Chonnam National University Medical School, Institute for Molecular Imaging and Theranostics, Gwangju, Republic of Korea

[2] Chonnam National University Medical School, Department of Molecular Medicine, Gwangju, Republic of Korea

[3] Chonnam National University Medical School, Department of Microbiology, Gwangju, Republic of Korea

[4] Chonnam National University Medical School, 4Department of Nuclear Medicine, Gwangju, Republic of Korea

162 SYNERGISTIC CANCER IMMUNOTHERAPY UTILIZING ONCOLYTIC BACTERIA SECRETING FUSION PROTEIN OF INTERLEUKIN 15 AND HETEROLOGOUS FLAGELLIN B

Zhang Ying[1], Min Jung-Joon[1]

[1] Chonnam National University Medical School, Institute for Molecular Imaging and Theranostics, Gwangju, Republic of Korea

163 INNOVATIVE TARGETED NANOSYSTEMS FOR DIAGNOSIS AND TREATMENT OF TRIPLE NEGATIVE BREAST CANCER

Alessandro Amaolo[1, 2], Chiara Romiti[1, 2], Antonino Di Lorenzo[1, 2], Laura Conti[1, 2], Giuseppe Ferrauto[1, 2], **Enza Di Gregorio**[1, 2]

[1] University of Turin, Molecular Biotechnology Center, Turin, Italy

[2] University of Turin, Biotecnologie Molecolari e Scienze per la Salute, Turin, Italy

164 INTRACELLULAR WATER AND SODIUM AS BIOMARKERS FOR CANCER DIAGNOSIS AND THERAPY IN MONENSIN-TREATED HEPATOCELLULAR CARCINOMA

Simona Baroni[1], Maria Ruggiero[1], Nausicaa Clemente[2], Simonetta Geninatti Crich[1], Rita Carini[2]

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

[2] University of Piemonte Orientale, Department of Health Science, Novara, Italy

165 MR SPECTROSCOPY TO ASSESS METABOLIC CHANGES IN RESPONSE TO CHOLINE KINASE INHIBITION IN GL261 MOUSE GLIOBLASTOMA.

Tareq Alrashidi[1], Sourav Bhaduri[1, 2], Elisabeth Gash[1], Mohesh Moothanchery[1], Christopher Ball[1], Nooradean Ahmed[1], Harish Poptani[1]

[1] University of Liverpool, Centre for Pre-Clinical Imaging, Liverpool, United Kingdom

[2] Symbiosis International University, Symbiosis Centre for Medical Image Analysis, Lavale, Pune, India

166 IMAGING FERROADDICITON IN CANCER

Elizabeth Isaac[1, 2], Elana Apfelbaum[1, 2], Ali Sonay[1], Hsiao-Ting Hsu[1], Jan Grimm[1, 2]

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

[2] Weill Cornell Medical College, Department of Pharmacology, New York, United States of America

167 ANALYSIS OF DOXORUBICIN-TELMISARTAN COMBINATION THERAPY USING 2D CO-CULTURES AND 3D MULTICELLULAR TUMOR SPHEROIDS

Rasika Daware[1], Armin Shalmani[1], Quim Peña[1], Tarun Ojha[1, 2], Alexandros Marios Sofias[1], Federica De Lorenzi[1], Twan Lammers[1]

[1] RWTH Aachen University, Institute for Experimental Molecular Imaging (ExMI), Aachen, Germany

[2] Utrecht University, Department of Pharmaceutics, Utrecht, Netherlands

168 BIOACTIVE Λ-CARRAGEENAN OLIGOSACCHARIDES COATING MN-DOPED IRON OXIDE NANOPARTICLES AS POTENTIAL ANTICANCER NANODRUGS

Manon Porta[1], Susana Carregal-Romero[2, 3], Clément Daviaud[1], Lydia Martínez-Parra[2], Chanez Manseur[1], Jean-Marie Piot[1], Ingrid Fruitier-Arnaudin[1], Jesús Ruíz-Cabello[2, 3, 4], Hugo Groult[1]

[1] LIENSs (LIttoral ENvironment et Sociétés) UMR CNRS 7266, La Rochelle Université, La Rochelle, France

[2] CIC biomaGUNE and Basque Research and Technology Alliance (BRTA), Donostia-San Sebastián, Gipuzkoa, Spain

[3] CIBER de Enfermedades Respiratorias (CIBERES), Madrid, Spain

[4] Ikerbasque, Basque Foundation for Science, Bilbao, Spain

TRANSLATIONAL/CLINICAL STUDIES IN ONCOLOGY | PW22

Simone Krebs (New York, USA)

170 TRANSLATIONAL RESEARCH AND DEVELOPMENT OF A RADIOPHARMACEUTICAL DRUG TARGETING C-MET IN NON-SMALL CELL LUNG CANCER

Timofei Rusu[1, 2], Anita Rodenas[1], Jacques Cadranel[1], Christophe Portal[3], Aurélie Prignon[1, 2]

[1] THERANOSCAN Clinical Research Group of the Pneumology and Thoracic Oncology Department,Tenon Hospital AP-HP, Paris, France

[2] Positronic Molecular Imaging Laboratory (LIMP) UMS28 Small Animal Phenotyping, Sorbonne University, Paris, France

[3] Edinburgh Molecular Imaging, Edinburgh, United Kingdom

171 TRANSLATIONAL CHALLENGES FOR MOTION MODEL ULTRASOUND LOCALIZATION MICROSCOPY (MULM): INITIAL RESULTS ON BREAST CANCER PATIENTS

Céline Porte[1], Matthias Kohlen[2], Finn von Maltzahn[1], Thomas Lisson[3], Saskia von Stillfried[4], Stefanie Dencks[3], Marion Piepenbrock[3], Anne Rix[1], Patrick Koczera[1], Peter Boor[4], Elmar Stickeler[2], Georg Schmitz[3], Fabian Kiessling[1, 5]

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

[2] University Clinic Aachen, Department of Obstetrics and Gynecology, Aachen, Germany

[3] Ruhr University Bochum, Chair for Medical Engineering, Bochum, Germany

[4] University Clinic Aachen, Institute of Pathology, Aachen, Germany

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172 THE COMPLEMENTARY ROLE OF PSMA EXPRESSION LEVEL AND [^{18}F]FDG PET/CT IN PREDICTING THYROID CANCER AGGRESSIVENESS AND PATIENT OUTCOME

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173 HOW TO NORMALIZE ^{89}ZR-IMMUNO-PET TISSUE UPTAKE FOR THE AVAILABILITY OF TRACER IN PLASMA

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174 K-MEANS CLUSTERING OF CLINICAL HP^{13}C-MRI IN RENAL CELL CARCINOMA IMPROVES IDENTIFICATION OF HIGHEST-GRADE REGION

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175 ASSESSMENT OF THE SENSITIVITY OF ^{2}H MR SPECTROSCOPY MEASUREMENTS OF [2,3-$^{2}H_2$]FUMARATE METABOLISM FOR DETECTING TUMOR CELL DEATH

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176 COMPARISON OF TWO HYBRID SENTINEL NODE TRACERS: INDOCYANINE GREEN (ICG)-^{99M}TC-NANOCOLLOID VS. ICG-^{99M}TC-NANOSCAN FROM A NUCLEAR MEDICINE AND SURGICAL PERSPECTIVE.

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177 RADIOMICS ANALYSIS OF PSMA PET/CT FOR PREDICTING PSA-BASED RESPONSE TO 177LU-PSMA RADIOLIGAND THERAPY IN MCRPC PATIENTS

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BRAIN FUNCTION & COGNITION | PW23

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200 COMPARISON OF MRI AND BEHAVIORAL TESTING FOR PREDICTION OF LONG-TERM OUTCOME IN MICE USING MACHINE LEARNING

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201 CEREBRAL BLOOD FLOW MEASUREMENT BY ARTERIAL SPIN LABELLING IN A EXPERIMENTAL MODEL OF HYPERTENSION-INDUCED BRAIN INJURY IS CORRELATED TO COGNITIVE IMPAIRMENT OF THE SPATIAL MEMORY DOMAIN

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202 RESTING-STATE QUASI-PERIODIC PATTERNS REVEAL FUNCTIONAL RESCUE IN A MUTANT HUNTINGTIN LOWERING MOUSE MODEL OF HUNTINGTON'S DISEASE

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203 SHORT TERM EFFECT OF CALORIC RESTRICTION OR RESVERATROL ON FUNCTIONAL CONNECTIVITY IN FEMALE TGF344-AD RATS USING RSFMRI

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204 MICROBIAL TRYPTOPHAN METABOLITE MODULATES PAIN PERCEPTION IN A MURINE MODEL OF RHEUMATOID ARTHRITIS

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205 INFLAMMATORY AND COGNITIVE EFFECTS OF IRRADIATION ON HEALTHY BRAIN TISSUE – MEASURED BY DPA-714 PET AND NOVEL OBJECT RECOGNITION

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206 MODALITY AND SEX DIFFERENCES IN BOLD ACTIVATION FOLLOWING INCISION-INDUCED PAIN IN MICE

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207 CHEMOGENETIC MANIPULATION OF THE RAT MOTOR CORTEX INDUCES CHANGES IN FUNCTIONAL CONNECTIVITY

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208 REVEALING CONNECTIVITY USING PSYCHOPHYSIOLOGICAL INTERACTIONS ANALYSIS FROM OPTOGENETIC FUNCTIONAL MRI IN RATS

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209 DO FUNCTIONAL AND MORPHOMETRIC CHANGES IN BRAIN INTERDEPEND ON EACH OTHER? A BOLD AND MORPHOMETRIC STUDY IN TRANSGENIC HCN4 KNOCK-OUT MICE

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210 CORTICAL EXCITATORY/INHIBITORY BALANCE CRITICALLY CONTROLS BRAINWIDE FMRI CONNECTIVITY

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211 WHEN DISCRETE BECOMES CONTINUOUS: A MULTIMODAL STUDY OF THE VISUAL CONTINUITY ILLUSION IN THE RAT

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212 TRANSCRANIAL ELECTRICAL STIMULATION WITH TEMPORAL INTERFERENCE INDUCES BOLD SIGNAL CHANGE IN DEEP BRAIN STRUCTURES AND HIGHLIGHTS ITS THERAPEUTIC POTENTIAL FOR MOTOR DISORDERS

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213 CORRELATION BETWEEN LOSS OF KEY PROPRIOCEPTIVE TRANSCRIPTION FACTORS RUNX3 AND EGR3 AND LOCOMOTION-RELATED BRAIN AREAS ABNORMALITIES DETECTED BY MRI

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214 AGE DEPENDENT RESTING STATE ALTERATIONS IN AN ANIMAL MODEL OF AUTISM SPECTRUM DISORDER

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215 LONGITUDINAL ASSESSMENT OF THE DOSE-RESPONSE OF IODODIFLUNISAL ON THE FORMATION OF AMYLOID-B PLAQUES IN A MOUSE MODEL OF ALZHEIMER'S DISEASE BY PET IMAGING.

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BRAIN METABOLISM, MICROSTRUCTURE & ANATOMY I | PW24

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217 WIDESPREAD BRAIN ATROPHY AND DIFFUSIVITY CHANGES IN THE PLP-A-SYN MOUSE MODEL OF MULTIPLE SYSTEM ATROPHY (MSA)

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218 HYPOGLYCEMIC BRAIN RESPONSE TO EXPERIMENTAL LIVER FIBROSIS VISUALIZED BY LONGITUDINAL ^{18}F-FDG PET.

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219 CORTICAL IRON ACCUMULATION IN *MAPT*- AND *C9ORF72*-ASSOCIATED FRONTOTEMPORAL LOBAR DEGENERATION

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220 TRANSLATIONAL MRI OXYGEN METABOLISM VALIDATED BY PET-MRI FOR ISCHEMIC STROKE

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221 DIFFUSION MRI REVEALS RESCUE OF STRUCTURAL CHANGES IN A MOUSE MODEL OF HUNTINGTON'S DISEASE BY MUTANT HUNTINGTIN LOWERING

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222 COMPARING THE SENSITIVITY OF RADIOTRACERS TO MEASURE PHYSIOLOGICALLY RELEVANT CHANGES IN P-GLYCOPROTEIN FUNCTION AT THE BLOOD-BRAIN BARRIER

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223 DYNAMICS OF NEURODEGENERATION AND NEUROPLASTICITY AFTER NOISE-INDUCED HEARING LOSS: A CORRELATIVE MRI AND HISTOLOGICAL STUDY IN MICE

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224 REPEATED MILD TRAUMATIC BRAIN INJURY IN ADULT MALE RATS INDUCE NEUROLOGICAL AND MEMORY IMPAIRMENTS AND INCREASE BRAIN METABOLISM

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225 CHARACTERIZATION OF AN EXPERIMENTAL MODEL OF CEREBRAL ARTERIOVENOUS MALFORMATION BY MAGNETIC RESONANCE IMAGING

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226 [^{18}F]FDG-PET AS A TOOL TO DISCOVER THE ROLE OF ASTROCYTES IN BRAIN METABOLISM

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227 SUPER-RESOLUTION NEURAL NETWORK-DRIVEN MOUSE CEREBROVASCULAR MAPPING

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MRI & MPI I| PROBES/REPORTER GENES | PW25

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300 A NEW COMPASS IN MEDICAL POINT-OF-CARE DIAGNOSTICS

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301 MULTIFUNCTIONAL NANOMATERIALS FOR TARGETED MRI AND PHOTOTHERMAL THERAPY

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302 HYBRID MAGNETIC-PLASMONIC NANOPARTICLE PROBES FOR MULTIMODAL BIOIMAGING

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303 IMPROVING THE DIAGNOSTIC FUNCTIONALITY OF MAGNETOTACTIC BACTERIA THROUGH THE INCORPORATION OF TB AND GD

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304 NOVEL IMAGING PROBES FOR THE BRAIN AND BLOOD-BRAIN-BARRIER PENETRATION

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305 SMART CARRIERS OF A NOVEL THERANOSTIC AGENT FOR MAGNETIC RESONANCE IMAGING (MRI)

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306 MULTICOMPONENT PEPTIDE-BASED HYDRO- AND NANO-GELS MATRICES FOR THE IMPROVEMENT OF IRON-BASED MRI CONTRAST EFFICIENCY

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307 DESIGN OF HIGH-RELAXIVITY MRI NANOPROBES FOR MULTIMODAL IMAGING

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308 CAR T CELLS LOADED WITH IRON OXIDE NANOPARTICLES FOR MRI TRACKING OF TUMOR INFILTRATION AND MAGNETIC MANIPULATION

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309 MULTICORE VS CORE-SHELL PFCE/PLGA NANOPARTICLES: IMPACT OF ULTRASTRUCTURE ON PARTICLE STIFFNESS AND CELL UPTAKE.

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310 INVESTIGATING HYPER- AND HYPOINTENSE SIGNAL CHANGES FROM GD^{3+} TRANSCHELATED TO DIFFERENT POLYSACCHARIDES TO ELUCIDATE VARIABLE VISIBILITY OF GD^{3+} LONG-TERM DEPOSITION

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311 METAL-DOPED IRON OXIDE NANOMATERIALS FOR ENHANCED T1-MRI.

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PET/SPECT, RADIONUCLIDE, X-RAY, CT II | PROBES/REPORTER GENES | PW26

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367 NOVEL RADIOHYBRID PET-TRACERS FOR THE IMAGING OF NEUROENDOCRINE TUMORS

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368 TOWARDS NON-INVASIVE CELL TRACKING OF CELL THERAPIES BY PET/SPECT IMAGING

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369 IN VITRO EVALUATION OF GALLIUM-68 RADIOLABELLING OF A NEW AAZTA-FAPI-46 CHELATOR FOR FAP IMAGING

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370 IMPACT OF CYTOCHROME INDUCTION OR INHIBITION ON THE PLASMA AND BRAIN KINETICS OF [^{11}C]METOCLOPRAMIDE, A PET PROBE FOR P-GLYCOPROTEIN FUNCTION AT THE BLOOD-BRAIN BARRIER

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371 COMPARISON OF CAM AND MOUSE MODEL BY PET AND MRI USING RADIOLABELED HUMAN SERUM ALBUMIN

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

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373 A NOVEL RADIOTRACER IN CONJUNCTION WITH CERENKOV IMAGING ALLOWS NON-INVASIVE MONITORING OF HEPATIC MYOFIBROBLASTS IN A MOUSE MODEL OF ACUTE LIVER INJURY.

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374 DEVELOPMENT OF ORIGINAL RADIOTRACERS FOR PET IMAGING TARGETING P53 IN ONCOLOGY

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375 ANTI-EGFR RADIOIMMUNOCONJUGATES IN PDAC MOUSE MODELS - THE IMPACT OF THE ANTIBODY FORMAT AND SIZE IN RADIOTHERANOSTIC DESIGN.

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376 *IN VIVO* BIODISTRIBUTION OF [^{18}F]PSMA-DERIVATIVE RADIOPHARMACEUTICALS IN PCA AND GBM PRECLINICAL MODELS

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377 PSMA.BN$_2$DT3A – A NOVEL ACYCLIC PSMA-CHELATOR FOR RADIOLABELLING UNDER MILD CONDITIONS WITH GALLIUM-68

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378 PRELIMINARY EVIDENCE OF *IN HOUSE* PRODUCTION OF [^{18}F]F-FAPI-74

Anna Morisco[1], Costantina Maisto[1], Roberta de Marino[1], Valentina Porfidia[1], Elisabetta Squame[1], Laura D'Ambrosio[1], Michela Aurilio[2], Valentina Pirozzi Palmese[1], Monica Buonanno[1], Aureliana Esposito[1], Paolo Gaballo[1], Secondo Lastoria[1]

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379 SITE-SPECIFICALLY VERSUS RANDOMLY THP-FUNCTIONALIZED HPD-L1 SINGLE DOMAIN ANTIBODY; PRELIMINARY DATA TOWARD KIT DEVELOPMENT

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380 BIODISTRIBUTION OF RADIOACTIVELY LABELED SPLICE MODULATING ANTISENSE OLIGONUCLEOTIDES AFTER INTRACEREBROVENTRICULAR AND INTRATHECAL INJECTION IN MICE

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381 FIRST REPORT ON 2-[^{18}F]FDG BIODISTRIBUTION IN CHICK EMBRYOS BASED ON PET/MRI AND GAMMA COUNTING

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382 NANOPARTICLE-TO-NANOPARTICLE BIORTHOGONAL APPROACH FOR ATHEROSCLEROSIS IMAGING

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IMAGE-GUIDED DRUG DELIVERY | PW27

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400 ESTABLISHMENT OF LUNG TUMOUR MODELS USING *IN VIVO* TRACEABLE NSCLC CELL LINES.

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401 REDOX RESPONSIVE MANGANESE-BASED MRI THERANOSTICS FOR CANCER THERAPY

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402 DESIGNING NANOMEDICINE LIBRARIES VIA CUSTOM-MADE 3D-PRINTED MICROFLUIDICS FOR IMAGE-GUIDED DRUG DELIVERY APPLICATIONS

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404 EFFECT OF CELLULAR AND MICROENVIRONMENTAL MDR ON TUMOR-TARGETED DRUG DELIVERY IN TNBC

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405 *INCORPORATION OF IODINATED OILS INTO MICROCAPSULES FOR IMAGE-GUIDED DRUG DELIVERY*

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406 GADOLINIUM LABELLED POLYELECTROLYTE THERANOSTIC NANOCAPSULES FOR THERAPEUTIC CARGO DELIVERY AND MRI DETECTION. THE INFLUENCE OF SHELL COMPOSITION ON CONTRASING PROPERTIES.

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407 DEVELOPMENT OF NEW HYDROPHILIC ‚SILICON-FLUORIDE ACCEPTOR' MOIETIES FOR RADIOPHARMACEUTICALS.

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408 [^{89}ZR]ZR(OXINATE)$_4$ RADIOLABELLING OF HUMAN NEUTROPHIL-DERIVED EXTRACELLULAR MICROVESICLES AND *IN VIVO* PET IMAGING IN A MOUSE MODEL OF RHEUMATOID ARTHRITIS

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410 PRECLINICAL NUCLEAR IMAGING STUDY OF THE EFFECT OF TUMOUR-TARGETED RADIATION IN THE BIODISTRIBUTION AND TUMOUR UPTAKE OF PEGYLATED LIPOSOMAL NANOMEDICINES IN A SYNGENEIC FIBROSARCOMA MODEL

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411 WHEN PHOTODYNAMIC MEETS SONOPORATION: AN INNOVATIVE THERAPEUTIC STRATEGY.

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DESIGN & APPLICATION OF (RADIO)THERANOSTICS | PW28

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420 OPEN-SHELL NANOSENSITIZERS FOR GLUTATHIONE-RESPONSIVE CANCER SONODYNAMIC THERAPY

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421 MOLECULAR ENGINEERING OF A NANOBODY TARGETING MESOTHELIN FOR NEW THERANOSTIC APPROACH IN NUCLEAR ONCOLOGY

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422 TRANS-CYCLOOCTENE-CONJUGATED TRIMERIC PSMA-617 AS A PLATFORM FOR PRETARGETED THERANOSTICS

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423 225AC-DOTA-PSMA-617 PRODUCTION METHOD: DEVELOPMENT OF EFFICIENT AND REPRODUCIBLE RADIOLABELING PROCESS

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424 PRECLINICAL THERAGNOSTIC APPROACH FOR EARLY DETECTION AND TREATMENT OF ALZHEIMER´S DISEASE AND OTHER TAUOPATHIES BASED ON NOVEL P-TAU MONOCLONAL ANTIBODY

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425 STEM CELL-MEDIATED INTRATUMORAL DELIVERY OF THERANOSTIC GOLD-IRON OXIDE NANOFLOWERS IN PROSTATE CANCER

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426 PRELIMINARY STUDY OF ^{131}I-UREASE NANOMOTORS AS RADIOTHERAPEUTIC AGENTS FOR BLADDER CANCER

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427 GENETIC PROGRAMMING OF ONCOLYTIC BACTERIA BY NITRIC OXIDE-SENSING SWITCH SYSTEM FOR TUMOR TARGETING GENE DELIVERY

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428 TOPICAL WOUND TREATMENT WITH A NITRIC OXIDE-RELEASING PDE5 INHIBITOR FORMULATION ENHANCES BLOOD PERFUSION AND PROMOTES HEALING IN MICE

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429 INVESTIGATION ON THE IMPROVED TIME POINT TO ASSESS THE RADIOCHEMICAL PURITY OF ^{225}AC-CHELATOR-PEPTIDE

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430 CXCR4-TARGETED RADIO-THERAGNOSTICS BASED ON THE ENDOGENOUS LIGAND EPI-X4 FOR ONCOLOGICAL APPLICATIONS

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431 WAZABY, A NIR-I / NIR-II FLUORESCENT PLATFORM FOR THE DEVELOPMENT OF THERANOSTIC APPROACH

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432 MRI-FRIENDLY POLYELECTROLYTE THERANOSTIC NANOCARRIERS.

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433 RAPID PHOTORADIOSYNTHESIS OF THERANOSTIC RADIOIMMUNOCONJUGATES USING LUTETIUM-177

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434 EVALUATION OF RADIOSENSITIZING MAGNETIC NANOPARTICLES AS A NOVEL THERANOSTIC AGENT FOR CANCER THERAPY

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435 *MRI CONTRAST PROPERTIES OF GADOLINIUM-LABELED HYBRID NANOSILICA FOR POTENTIAL USE IN THERANOSTIC NANOCARRIERS*

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CARDIAC AND PULMONARY DISEASES | TISSUE REMODELING | PW29

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500 IMMUNOPET IMAGING FOR THE ASSESSMENT OF THE NEUTROPHIL INFILTRATION IN ACUTE LUNG DAMAGE MODEL

María Isabel González[1, 2], Gorka Sobrino[2], Agustín Clemente-Moragón[3, 4], Mario González-Arjona[1, 2], Mónica Gómez-Parriza[3], Mónica Abella[6], Borja Ibáñez[3, 4, 5], Manuel Desco[1, 2, 6], Eduardo Oliver[3, 4, 8], Beatriz Salinas[1, 2, 7]

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501 QUANTIFYING MYOCARDIAL BLOOD FLOW IN MICE USING 18F-FLURPIRIDAZ

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502 CRYOGENIC CONTRAST-ENHANCED MICROCT ENABLES NONDESTRUCTIVE 3D QUANTITATIVE HISTOPATHOLOGY OF SOFT BIOLOGICAL TISSUES

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503 IMAGING THE IMPACT OF INFLAMMATION ON CARDIAC FIBROBLAST ACTIVATION AFTER MYOCARDIAL INFARCTION IN MICE

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504 IMPACT OF IMAGE ACQUISITION PROTOCOL ON QUANTITATIVE MOLECULAR PET IMAGING IN MICE AFTER MYOCARDIAL INFARCTION: A MULTICENTER STUDY

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505 MOLECULAR IMAGING OF FIBROBLAST ACTIVATION PROTEIN AFTER MYOCARDIAL INFARCTION USING [^{68}GA]DATA^{5M}.SA.FAPI

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506 THE INFLUENCE OF SEX ON THE PROGRESSION OF PULMONARY ARTERIAL HYPERTENSION IN MICE

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507 USING A NEWLY DEVELOPED COLLAGEN-BINDING PROBE TO IMAGE COLLAGEN TYPE III IN PRE-CLINICAL MODELS OF CARDIOVASCULAR FIBROSIS

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508 RAPID QUANTIFICATION OF DIFFUSE CARDIAC FIBROSIS USING MICROCT IN MICE

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

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510 REDUCED COMPLEXITY OF LUNG VENTILATION IN ACUTE BRONCHOCONSTRICTION REVEALED BY K-EDGE SUBTRACTION IMAGING (KES)

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511 A LONGITUDINAL MRI STUDY ON RIGHT VENTRICULAR FUNCTION AND STRAIN IN PULMONARY ARTERIAL HYPERTENSION: A PRECLINICAL INVESTIGATION AT 11.7 T

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512 *IN UTERO* CARDIAC IMAGING AND HEART RATE DETERMINATION OF MULTIPLE MOUSE FETUSES USING SELF-GATED MRI (POLYGATE)

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513 ANALYSIS OF CARDIAC FUNCTION AND HEMODYNAMICS IN SEPSIS BY MRI: A PRECLINICAL STUDY AT 9.4T

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IMAGING OF INFECTION | PW30

Beatriz Salinas (Madrid, Spain); **Catherine Chapon** (Fontenay-aux-Roses, France)

600 A MULTIPARAMETRIC MRI STUDY OF SEPSIS-INDUCED RENAL INJURY IN COMPARISON TO HISTOLOGY

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601 AN IMMUNOPET STRATEGY TO TRACK SARS-COV-2 *IN VIVO* IN NON-HUMAN PRIMATES

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602 A NEW MULTIPLEXING METHODOLOGY FOR THE NEUTRALIZATION AND ASSESSMENT OF BINDING CAPACITY OF MATERNAL SERA AGAINST VARIOUS SARS-COV-2 VARIANTS

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603 BTOXINS-BASED RADIOTRACERS FOR THE SPECIFIC DETECTION OF *CLOSTRIDIUM DIFFICILE* BACTERIA

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604 [^{68}GA]GA-NOTA-MMR-SDAB FOR PET IMAGING OF M2 MACROPHAGES IN RHEUMATOID ARTHRITIS

Maarten Steinz[1], Jeffrey Stuijt[3], Fatemeh Khodadust[1], Nick Devoogdt[4], Jo van Ginderachter[5, 6], Yik Kan[2], Sander Tas[2], Gerrit Jansen[1], Jan Piet van Hamburg[2], Maxime Schreurs[3], Esther Kooijman[3], Wissam Beaino[3], Bert Windhorst[3], Conny van der Laken[1]

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605 CANDIDA ALBICANS INFECTION IN THE KIDNEY: LIVE IMAGING OF EARLY COLONIZATION EVENTS.

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606 NOVEL IMAGING-SUPPORTED TRISOMIC MOUSE MODEL OF RSV-INFECTION FOR IMMUNOLOGICAL STUDIES OF RESPIRATORY INFECTIONS IN THE CONTEXT OF DOWN SYNDROME.

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607 INVESTIGATING THE EFFECT OF RESPIRATORY TRACT INFECTIONS ON VWF ACTIVITY IN THE CEREBRAL VASCULATURE USING MOLECULAR MAGNETIC RESONANCE IMAGING

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608 EVALUATION OF TSPO RADIOTRACER [^{18}F]FEPPA IN MOUSE MODELS OF ACUTE ZIKA AND DENGUE INFECTION-ASSOCIATED INFLAMMATION

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609 QUANTITATIVE MRI OF FUNGAL BRAIN LESIONS DISTINGUISHES BETWEEN DIFFERENT GENOTYPES OF INFECTION CAUSING PATHOGENS.

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610 IMAGING THE MICROBIOME: PHOTOACOUSTIC IMAGING OF THE INVASION OF E. COLI TOP10 INTO THE CHRONICALLY INFLAMED COLON WALL

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611 IMMUNOFLUORESCENCE, SHG AND RAMAN IMAGING OF BONE SECTIONS FROM A CHRONIC OSTEOMYELITIS MOUSE MODEL

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612 TWO-PHOTON MICROSCOPY REVEALS LUNG FIBROSIS IN LONG TERM SARS-COV-2 INFECTION IN RHESUS MACAQUES

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613 HIGH-THROUGHPUT SCREENING OF CATERPILLARS AS A PLATFORM TO STUDY NEW ANTIMICROBIAL COMPOUNDS AND PATHOGENS

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METABOLISM II | PW31

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715 SIMULTANEOUS MEASUREMENT OF SARCOLEMMAL AND MITOCHONDRIAL MEMBRANE POTENTIALFROM THE PHARMACOKINETICS OF [^{99M}TC]SESTAMIBI

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716 [^{18}F]ALF-RESCA-GSA A POTENTIAL TRACER FOR IMAGING FUNCTIONAL LIVER RESERVE

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717 TOF-SIMS AS A TOOL TO STUDY DIFFERENCES IN LIPID PROFILES OF CELLS IN HYPERGLYCEMIA AND EVS SECRETED BY THEM

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718 DOES SODIUM FLUX VIA NA^+/K^+-ATPASE DRIVE THE WARBURG EFFECT IN CANCER?

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719 GLYCOLYTIC METABOLISM IN HYPERTROPHIC MUSCLE ASSESSED BY HYPERPOLARIZED [1-^{13}C]PYRUVATE MR AND [^{18}F]FDG-PET IMAGING

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720 TESTICULAR METABOLIC ACTIVITY ASSESSED BY MEANS OF ^{18}F-FDG-PET/CT IMAGING AND HYPOGONADISM IN MALE PATIENTS DIAGNOSED WITH ERDHEIM-CHESTER DISEASE.

Georgios Papadakis[1], Vasiliki Giannakaki[1], Jorge Irizarry-Caro[2], Skand Shekhar[3], Sara Haroutunian[2], Bernadette Gochuico[2], William Gahl[2], Juvianee Estrada-Veras[2], Kevin O'Brien[4], Fady Hannah-Shmouni[3]

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721 PRECLINICAL IMAGING OF THE STRESS-AXIS VIA [^{18}F]FDG PET

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722 ASSESSING THE UTILITY OF DIFFERENT PET AND SPECT TRACERS TO MEASURE P-GLYCOPROTEIN ACTIVITY IN THE LIVER AND KIDNEYS

Irene Hernández-Lozano[1], Severin Mairinger[1, 2], Anna Zacher[2], Johann Stanek[2], Lara Breyer[2], Thomas Helbich[2], Marcus Hacker[2], Markus Zeitlinger[1], Jens Pahnke[3, 4, 5], Thomas Wanek[2], Oliver Langer[1, 2]

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723 PET IMAGING OF Σ1-RECEPTOR ENABLES THE ASSESSMENT OF POSTOPERATIVE PAIN IN RATS UNDER ANALGESIA

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PROCESSING, RECONSTRUCTION, SEGMENTATION & QUANTIFICATION | PW32

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917 POST-SECTIONING VERIFICATION AND SPATIAL CORRELATION OF 2D HISTOLOGICAL SLICES WITH 3D CT-SCANS THROUGH 3D PRINTED PHANTOMS

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918 QUANTITATIVE ACCURACY OF PRECLINICAL *IN OVO* PET/MRI: INFLUENCE OF ATTENUATION AND QUANTIFICATION METHODS

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919 SIMULATION STUDY FOR ARTIFACTS MARKERS IN MICROSCOPIC IMAGES

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920 PEAKING INSIDE THE BLACK BOX: LC MODEL START PARAMETERS

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921 EASY, FAST AND RELIABLE PRECLINICAL NUCLEAR IMAGING QUALITY CONTROL

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922 QUANTITATIVE READOUTS OF DIRECT PATLAK RECONSTRUCTIONS DEPEND ON IMAGING PROTOCOLS

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923 ALBIRA SI SPECT OPTIMIZATION IMAGING PROTOCOL USING [^{177}LU]LU

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924 IMPLEMENTING FAIR PRINCIPLES INTO THE XNAT PLATFORM TO MANAGE IMAGE WORKFLOW AND PROCESSING FOR PRECLINICAL IMAGING

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925 IMPROVED SEGMENTATION OF CT-FLT DATA BY HYBRIDIZATION WITH MRI

Sarah Schraven[1], Ramona Brück[1], Stefanie Rosenhain[1, 2], Teresa Nolte[1], David Heines[1], Hormoz Noormohammadian[1], Oliver Pabst[1], Wiltrud Lederle[1], Felix Gremse[1, 2], Fabian Kiessling[1]

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926 USING CONVENTIONAL X-RAY TUBE MICROCT TO SEPARATE IODINE AND GADOLINIUM CONTRAST AGENTS

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927 SIMPLIFIED USE OF [^{18}F]F13640 FOR FUNCTIONAL 5-HT_{1A} RECEPTOR EXPLORATION: FROM PET DYNAMIC MEASURES TO STATICS ACQUISITION

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928 BIEXPONENTIAL T2 MAPPING IMPROVES ASSESSMENT OF HUMAN TESTICULAR TISSUE MRI *EX-VIVO*

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929 INVIVOPET – AN AUTOMATED PET/CT BIODISTRIBUTION SYSTEM

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ULTRASOUND & OPTOACOUSTIC TECHNOLOGIES | PW33

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1000 CONTRAST-ENHANCED MULTISPECTRAL OPTOACOUSTIC TOMOGRAPHY FOR THE FUNCTIONAL ASSESSMENT OF THE GASTROINTESTINAL TRACT

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1001 EXAMINATION OF CALF MUSCLE REPERFUSION VIA MULTISPECTRAL OPTOACOUSTIC TOMOGRAPHY IN PATIENTS WITH INTERMITTENT CLAUDICATION AFTER EXERCISE

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1002 FREQUENCY DOMAIN PHOTOACOUSTIC MICROSCOPY FOR THE LABEL-FREE MONITORING OF *PARHYALE HAWAIENSIS* EMBRYOGENESIS

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1003 THE EFFICIENCY OF CO-FORMULATION AND CO-ADMINISTRATION FOR FOCUSED ULTRASOUND-MEDIATED POLYMERIC MICROBUBBLE-BASED MRNA DELIVERY IN CANCER

Junlin Chen[1], Anne Rix[1], Yuchen Wang[1], Bi Wang[1], Jinwei Qi[1], Jeffrey Momoh[1], Harald Radermacher[1], Yang Shi[1], Fabian Kiessling[1]

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1004 MULTIMODAL OPTICAL COHERENCE PHOTOACOUSTIC OPHTHALMOSCOPY IN RODENTS AIDED BY ADDITIVE MANUFACTURING

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1005 FREQUENCY WAVELENGTH MULTIPLEXED OPTOACOUSTIC TOMOGRAPHY

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1006 DEEP LEARNING BASED COMPOUNDING FOR MULTI-PERSPECTIVE PHOTOACOUSTIC IMAGING

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1007 THE INTERNATIONAL PHOTOACOUSTIC STANDARDIZATION CONSORTIUM: ON THE PATH TOWARDS A STANDARDIZED PHANTOM FOR PHOTOACOUSTIC IMAGING

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1008 DEEP LEARNING ASSISTED CHARACTERIZATION OF CAROTID PLAQUE COMPOSITION FROM MULTISPECTRAL PHOTOACOUSTIC IMAGES

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1009 SENSING ULTRASOUND LOCALIZATION MICROSCOPY REVEALS GLOMERULI IN LIVING RATS AND HUMANS

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MRI TECHNOLOGY | PW34

Peter van Zijl (Baltimore, USA); **Dominik von Elverfeldt** (Freiburg, Germany)

1040 REPRODUCIBILITY OF $T_{1\rho}$ MEASUREMENTS WITHIN AND ACROSS VENDORS: A CLINICAL STUDY ON HEALTHY HUMAN KNEE JOINT

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1041 MONITORING THE BONE TISSUE MICROENVIRONMENT OF DEGRADABLE MAGNESIUM ALLOY IMPLANTS WITH MRS AND ULTRASHORT ECHO TIME MRI

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1042 NEW BIOMATERIAL FOR 3D CELL MODELING AND NMR ANALYSIS: LOW SIGNAL INTERFERENCE AND HIGH DIFFUSION FOR ROBUST METABOLIC STUDIES IN-VITRO.

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1043 STUDIES TOWARDS QUANTIFICATION OF PFOB-FILLED POLYMER MICROCAPSULES FOR INTRAPERITONEAL DRUG DELIVERY BY ^{19}F-MRI

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1044 HOW TO ESTABLISH AND MAINTAIN A MULTIMODAL ANIMAL MRI DATA REPOSITORY

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1045 SEQUENCE COMPARISON FOR SODIUM MRI

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1046 PRECLINICAL (PET)/MR: ENSURING DATA QUALITY, RELIABILITY, AND REPRODUCIBILITY THROUGH QUALITY ASSURANCE PROCEDURES (QA)

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X-RAY BASED TECHNOLOGIES | PW35

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1060 X-RAY BASED 3D VIRTUAL HISTOLOGY OF UNSTAINED MURINE KIDNEY SAMPLES USING HIGH THROUGHPUT TOMOGRAPHY (HITT) ON EMBL BEAMLINE P14 ON PETRA III

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1061 THE IMPACT OF SINGLE VERSUS MIXED NOISE LEVEL USED IN TRAINING IMAGES FOR AI-BASED DENOISING ALGORITHMS IN MICRO-CT

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1063 SUPERSAMPLED IMAGING USING PHOTON-COUNTING DETECTORS

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1064 COMPUTED MICROTOMOGRAPHY FOR THE TUMOR SPHEROID VISUALIZATION IN AN EX-OVO CHICKEN EMBRYO MODEL.

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1065 OPTIMIZING POWER SETTINGS FOR µCT IMAGING OF MICRO-VASCULATURE – A PRACTICAL APPROACH

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1066 EVALUATION OF THE INFLUENCE OF THE ACQUISITION PARAMETERS ON THE ABSORBED DOSE OF A PRECLINICAL MICROCT SCANNER

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1067 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

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1068 3D HISTOLOGICAL ANALYSIS OF SOFT TISSUES BY CONTRAST-ENHANCED X-RAY MICROFOCUS COMPUTED TOMOGRAPHY: SCREENING AND STAINING OPTIMIZATION OF CONTRAST-ENHANCING STAINING AGENTS

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1069 ADVANCED 3D BIOMEDICAL IMAGING THROUGH MULTI-RESOLUTION, PHASE CONTRAST X-RAY MICRO-CT TECHNOLOGY

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1070 DEVELOPMENT OF X-RAY SPECTRAL SYSTEMS FOR FUNCTIONAL IMAGING WITH SYNCHROTRON RADIATION

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1071 IN VIVO MONITORING OF HYDROGEL-EMBEDDED STEM CELLS: COMBINATION OF SYNCHROTRON X-RAY PHASE-CONTRAST AND MULTI-SPECTRAL IMAGING APPLIED TO OSTEOARTHRITIS MICE MODELS.

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1072 CONTRAST AGENT-ENHANCED MICRO-CT OF THE HEALTHY AND INJURED SPINAL CORD

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1073 VIRTUAL HISTOLOGY OF HUMAN CEREBRAL AMYLOID ANGIOPATHY

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TISSUE OMICS & OPTICAL TECHNOLOGIES | PW36

Dale Waterhouse (London, UK); **Alan Race** (Unterschleißheim, Germany)

1080 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]

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1081 MULTIPLEX IMAGING OF ENZYME ACTIVITIES BY MALDI IMS

Eyk Schellenberger[1], Akvile Häckel[1], Ulf Reimers[3], Grit Nebrich[2], Liu Yang[1], Oliver Klein[2]

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1082 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]

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1083 VISUALIZATION OF METABOLITES ASSOCIATED WITH *H. PYLORI* INFECTION IN MICE STOMACH TISSUES USING DESI-MSI

Lieby Zborovsky[1], Sonja Fuchs[2], Nicole Strittmatter[1], Raquel Mejías-Luque[2], Markus Gerhard[2]

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[2] Technical University of Munich, Institute for Medical Microbiology, Immunology and Hygiene, Munich, Germany

1084 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

1085 *EX VIVO* BIODISTRIBUTION OF DPA-714 AND ITS METABOLITES IN THE RAT BRAIN BY MALDI MASS SPECTROMETRY IMAGING

Cyrille Santerre[1], Alexandra Winkeler[1], Edith Nicol[2], Caroline Denis[1], Nicolas Elie[3], Bertrand Kuhnast[1], David Touboul[3], **Marie-Anne Peyronneau**[1]

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1086 CONTROLLED GRAFTING EXPANSION MICROSCOPY WITH A TRIFUNCTIONAL IMAGING PROBE

Isabelle Heing-Becker[1], Ria Thielhorn[1], Nadja Hümpfer[1], Jakob Rentsch[1], Rainer Haag[1], Kai Licha[1], Helge Ewers[1]

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1087 PROTOTYPING 3D-PRINTED PHANTOMS TO ACHIEVE OPTICAL BIOMIMICRY FOR FLT/CT IMAGING PROCEDURES

Alessandro Motta[1], Federica De Lorenzi[1], Shiva Khorshid[1], Felix Gremse[3], Niklas Junker[2], Fabian Kiessling[1], Gero Von Plessen[2], Twan Lammers[1], Alexandros Marios Sofias[1]

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1088 *IN VIVO* NIR-II IMAGING APPLICATIONS ASSISTED BY IMAGING PROCESSING AND ANALYSES

Xavier Le Guével[1], Vladimir Baulin[2], Véronique Josserand[1], Jean-luc Coll[1]

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1089 DETECTION OF MELANIN POSITIVE CELLS IN SPHEROID MODEL USING OPTICAL COHERENCE PHOTOACOUSTIC MICROSCOPY

Shiyu Deng[1], Abigail Deloria[1], MohammadA Sabbaghi[2], Agnes Csiszar[2], Gergely Szakacs[2], Richard Haindl[1], Rainer Leitgeb[1], Leopold Schmetterer[3, 4], Manojit Pramanik[3], Wolfgang Drexler[1], Mengyang Liu[1, 4]

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1090 FLUORESCENT NANODIAMONDS WITH SILICON-VACANCY CENTERS FOR INTRACELLULAR THERMOMETRY

Anna Ermakova[1], Weina Liu[2, 1], Md Noor A Alam[1], Viatcheslav Agafonov[3], Tanja Weil[1]

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1091 MOLECULAR IMAGING TO INVESTIGATE CELL MIGRATION IN AN ADVANCED 3D CELL CULTURE

Irem Duman[1], Xavier Vila[2], Elma Joldic[1], Haider Sami[1], Chrysoula Vraka[3], Christian Kraule[4], Andreas Teuschl[2], Manfred Ogris[1], Marcus Hacker[3], Verena Pichler[1]

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1092 MUCUS PERMEATION OF LIPID COATED NANOPARTICLES THROUGH 3D HUMAN LUNG EPITHELIAL MODEL

Doyoung Kim[1], Gabrielle Mandl[2], Jimmy Vernaz[3], Samuel Constant[3], Song Huang[3], John Capobianco[2], Luigi Bonacina[1]

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1093 THIRD HARMONIC GENERATION IMAGING OF LIVE FUNGAL CELLS – QUANTIFYING LIPID DROPLETS DYNAMICS DURING NITROGEN STARVATION

Tanja Pajić[1], Nataša Todorović[2], Miroslav Živić[1], Stanko Nikolić[3], Mihailo Rabasović[3], Andrew Clayton[4], Aleksandar Krmpot[3]

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1095 LASER NANO-SURGERY OF FUNGAL CELL WALL TO ENABLE PATCH CLAMPING

Tanja Pajić[1], Katarina Stevanović[1], Nataša Todorović[2], Steva Lević[3], Svetlana Savić Šević[4], Dejan Pantelić[4], Miroslav Živić[1], Mihailo Rabasović[4], Aleksandar Krmpot[4, 5]

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1096 NONLINEAR OPTICAL IMAGING AND QUANTIFICATION OF THE PATHOLOGICAL CHANGES IN GASTROINTESTINAL TUMOR NONLINEAR OPTICAL IMAGING AND QUANTIFICATION OF THE PATHOLOGICAL CHANGES IN GASTROINTESTINAL TUMOR

Will Xia[1], Xiangjun Hu[2]

[1] Lehigh University, Bethlehem, United States of America

[2] Beijing Institute of Radiation Medicine, Beijing, China

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

Florence Muller[1], Boris Vervenne[1], Jens Maebe[1], Joel Karp[2], Christian Vanhove[1], Stefaan Vandenberghe[1]

[1] Ghent University, Medical Image and Signal Processing (MEDISIP), Department of Electronics and Information Systems, Faculty of Engineering and Architecture, Ghent, Belgium

[2] University of Pennsylvania, Physics and Instrumentation Group, Department of Radiology, Philadelphia, United States of America

14:10 FUNCTIONAL IMAGING PHENOTYPING IN RARE POMPE DISEASE

Roman Raming[1, 2], Lina Tan[1, 2], Adrian Buehler[1, 2], Jörg Jüngert[1], Lars-Philip Paulus[1, 2], Michael Uder[3], Ulrich Rother[4], Joachim Woelfle[1], Regina Trollmann[1], Rafael Heiß[3], Adrian Regensburger[1, 2], Jana Zschüntzsch[5], Frauke Alves[6, 7], Alexandra Wagner[1, 2, 8], Ferdinand Knieling[1, 2]

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14:30 – 15:00

AWARDING & FAREWELL | **(EUROPA SAAL (ENTRANCE 2ND FLOOR))**

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