



Optical Imaging Workshop

25th and 26th November 2010 – University Medical Center Göttingen in cooperation
with the Max-Planck Institute of Experimental Medicine

Location: Max-Planck-Institute of Experimental Medicine, Hermann-Rein-Str. 3, Göttingen (<http://www.em.mpg.de>)

LIST OF SPEAKERS

- Clemens Lowik**, Molecular Endocrinology and Molecular Imaging, Leiden University, The Netherlands
- Dario Neri**, Institute of Pharmaceutical Sciences, Dept of Chemistry and Applied Biosciences, ETH, Zürich, Switzerland
- Alexander Egner**, Laser Laboratorium Göttingen e.V., Göttingen, Germany
- Holger Rothe**, Institute for Bioprocessing and Analytical Measurement Techniques (iba), e. V., Heiligenstadt, Germany
- Alexander Flügel**, Dept. of Neuroimmunology, University Medical Center Göttingen, Göttingen, Germany
- Ronald Schade**, Institute for Bioprocessing and Analytical Measurement Techniques (iba), e. V., Heiligenstadt, Germany
- Jörg Enderlein**, III. Institute of Physics, Georg-August University of Göttingen, Göttingen, Germany
- Andreas Neef**, MPI of Dynamics and Self-Organization, Dept. of Non-linear Dynam. Theo. Neurophysics, Göttingen, Germany
- Shlomo Margel**, Dept. of Chemistry, Bar-Ilan University, Ramat Gan, Israel
- Ute Resch-Genger**, BAM Federal Institute for Materials Research and Testing, Berlin, Germany
- Michael Schäferling**, Institute of Analytical Chemistry, University of Regensburg, Regensburg, Germany
- Luigi Bonacina**, Biophotonics, Université de Genève, Genève, Switzerland
- Ingrid Hilger**, Institute of Diagnostic Interventional Radiology, University Hospital Jena, Jena, Germany
- Yuri Volkow**, Dept. of Clinical Medicine, Trinity College Dublin, Dublin, Ireland
- Heinrich Spiecker**, LaVision BioTec, Bielefeld, Germany
- Colin Self**, Institute of Cellular Medicine, The Medical School Newcastle University, Newcastle upon Tyne, United Kingdom
- Lutz F. Tietze**, Institute of Organic and Biomolecular Chemistry, University of Göttingen, Göttingen, Germany
- Twan Lammers**, Inst. for Pharmaceutical Sciences, Utrecht, The Netherlands & Dept of Exp. Mol. Imaging, RWTH Aachen
- Paolo Macor**, Dept. of Life Sciences, University of Trieste, Italy
- Donna Arndt-Jovin**, MPI of Biophysical Chemistry, Laboratory for Cellular Dynamics, Göttingen, Germany
- Giuliana Tromba**, SYRMEP Beamline, Sincrotrone Trieste, Italy
- Kai Licha**, Mivenion GmbH, Berlin, Germany
- Juan Manuel Górriz Sáez**, Dept. of Signal Theory, Telematics and Communications, University of Granada, Spain
- Michael Puderbach**, Dept. of Radiology, German Cancer Research Center Heidelberg, Heidelberg, Germany

LIST OF CHAIRS

Vito Lorusso, Consorzio per il Centro di Biomedicina Molecolare, Trieste, Italy

Frauke Alves, Dept. of Haematology and Oncology, University Medical Center Göttingen, Göttingen, Germany

Walter Stühmer, MPI of Experimental Medicine, Dept. of Molecular Biology of Neuronal Signals, Göttingen, Germany

Lorenz Trümper, Dept. of Haematology and Oncology, University Medical Center Göttingen, Göttingen, Germany

Joachim Lotz, Dept. of Diagnostic Radiology, University Medical Center Göttingen, Göttingen, Germany

Stefania Biffi, Optical Imaging Laboratory, Consorzio per il Centro di Biomedicina Molecolare, Trieste, Italy

Chiara Garovvo, Optical Imaging Laboratory, Consorzio per il Centro di Biomedicina Molecolare, Trieste, Italy

Holger Reichardt, Cellular and Molecular Immunology, University Medical Center Göttingen, Göttingen, Germany

Milena Ninkovic, MPI of Experimental Medicine, Dept. of Molecular Biology of Neuronal Signals, Göttingen, Germany

Katharina Jannasch, Dept. of Haematology and Oncology, University Medical Center Göttingen, Göttingen, Germany

Simeone Dal Monego, Optical Imaging Laboratory, Consorzio per il Centro di Biomedicina Molecolare, Trieste, Italy

Jeannine Missbach-Güntner, Dept. of Diagnostic Radiology, University Medical Center Göttingen, Göttingen, Germany

Miso Mitkovski, MPI of Experimental Medicine, Dept. of Molecular Biology of Neuronal Signals, Göttingen, Germany

Sarah Kimmina, Experimental Animal Research, University Medical Center Göttingen, Göttingen, Germany

Joanna Napp, MPI of Experimental Medicine, Dept. of Molecular Biology of Neuronal Signals, Göttingen, Germany

Andrea Markus, Dept. of Haematology and Oncology, University Medical Center Göttingen, Göttingen, Germany

Stephen Kilfeather, Aeirtec, Newcastle, United Kingdom

Michelle Epstein, Dept. of Dermatology/Immunodermatology/Experimental Allergy, Med. Univ. of Vienna, Vienna, Austria

Eberhardt Fuchs, Clinical Neurobiology Laboratory, German Primate Center Göttingen, Göttingen, Germany

Dörthe Kaschinski, Dept. of Cardiovascular Physiology, University Medical Center Göttingen, Göttingen, Germany

Luis Pardo, MPI of Experimental Medicine, Dept. of Molecular Biology of Neuronal Signals, Göttingen, Germany

Stefan Andreas, Clinic for pulmonary disorders, Immenhausen, Germany

PROGRAM SCHEDULE

Wednesday 24th November 2010

- 15:00 – 19:00 Registration
19:00 Welcome Reception

Thursday 25th November 2010

- 08:00 – 08:45 Registration
- 08:45 – 08:50 **Cornelius Frömmel** - Dean of the University Medical Center Göttingen
Welcome speech
- 08:50 – 08:55 **Christiane Hennecke** (Göttingen, Germany)
Support of the EU project
- 08:55 – 09:00 **Vito Lorusso/Walter Stühmer** (Trieste, Italy/Göttingen, Germany)
Frauke Alves/Joachim Lotz (Göttingen, Germany/Göttingen, Germany)
Introduction to P³AGI
- 09:00 – 09:45 KEYNOTE LECTURE: **Clemens Lowik** (Leiden, The Netherlands)
New smart optical imaging probes and animal models and translation into the clinic
- 09:45 – 10:45 Session 1: Nano – microscopy**
Chairs – Vito Lorusso/Walter Stühmer (Trieste, Italy/Göttingen, Germany)
- 09:45 – 10:15 **Alexander Egnér** (Göttingen, Germany)
Developments in fluorescence nanoscopy
- 10:15 – 10:45 **Holger Rothe** (Heiligenstadt, Germany)
Atomic force microscopy in cell biology and medical research
- 10:45 – 11:10 COFFEE BREAK
- 11:10 – 12:10 Session 2: Multiphoton - imaging technologies**
Chairs – Chiara Garovvo/Holger Reichardt (Trieste, Italy/Göttingen, Germany)
- 11:10 – 11:40 **Alexander Flügel** (Göttingen, Germany)
Intravital two-photon imaging of effector T cells within autoimmune CNS lesions
- 11:40 – 12:10 **Ronald Schade** (Heiligenstadt, Germany)
Two-photon microscopy – Application for tissue engineering
- 12:10 – 13:10 Session 3: Novel optical imaging approaches**
Chairs – Milena Ninkovic /Katharina Jannasch (Göttingen, Germany/Göttingen, Germany)
- 12:10 – 12:40 **Jörg Enderlein** (Göttingen, Germany)
Stochastic optical fluctuation and image scanning microscopy
- 12:40 – 13:10 **Andreas Neef** (Göttingen, Germany)
Light-activated ion channels as an optical interface to study neuronal function

Thursday 25th November 2010

- 13:10 – 14:10 LUNCH
- 14:10 – 15:10 Session 4: Nanoparticles as novel imaging probes**
Chairs – Simeone dal Monego/Jeannine Missbach-Güntner (Trieste, Italy/Göttingen, Germany)
- 14:10 – 14:40 **Shlomo Margel** (Ramat Gan, Israel)
Paramagnetic nanoparticles for multimodal imaging
- 14:40 – 15:10 **Michael Schäferling/Ute Resch-Genger** (Regensburg/Berlin, Germany)
Design of fluorescent nanoparticles
- 15:10 – 16:10 Session 5: Application of fluorescent nanoparticles**
Chairs – Miso Mitkovski/Sarah Kimmina (Göttingen, Germany/Göttingen, Germany)
- 15:10 – 15:40 **Luigi Bonacina** (Geneve, Switzerland)
Second harmonic imaging nano-probes for bio-LABELING
- 15:40 – 16:10 **Ingrid Hilger** (Jena, Germany)
Interactions of nanoparticles with biological systems
- 16:10 – 16:30 COFFEE BREAK
- 16:30 – 17:30 Session 6: Application of fluorescent nanoparticles in vivo**
Chairs – Joanna Napp/Andrea Markus (Göttingen, Germany/Göttingen/Germany)
- 16:30 – 17:00 **Yuri Volkow** (Dublin, Ireland)
"Nano-Barriers" and "Nano-Carriers": Advanced imaging approaches for nanoparticle uptake and intracellular targeting
- 17:00 – 17:30 **Heinrich Spiecker** (Bielefeld, Germany)
Novel approaches for Laser-Scanning Microscopy
- 17:45 SOCIAL PROGRAM – CHRISTMAS MARKET
- 20:30 DINNER AND GET TOGETHER PARTY

Friday 26th November 2010

- 08:55 – 09:00 **Walter Stühmer/Lorenz Trümper** (Göttingen, Germany/Göttingen, Germany)
Welcome
- 09:00 – 09:45 KEYNOTE LECTURE: **Dario Neri** (Zürich, Switzerland)
Targeting angiogenesis with antibody derivatives for imaging and therapy

Friday 26th November 2010

- 9:45 – 11:15** **Session 7: Antibodies and nanoparticles for therapeutic concepts**
Chairs –Stephan Kilefeather/Lorenz Trümper (Newcastle, UK/Göttingen, Germany)
- 09:45 – 10:15 **Colin Self** (Newcastle, United Kingdom)
Directing antibodies by light - The clinical consequences
- 10:15 – 10:45 **Lutz F. Tietze** (Göttingen, Germany)
The Antibody Directed Enzyme Prodrug Therapy - An approach for a selective treatment of cancer
- 10:45 – 11:15 **Twan Lammers** (Utrecht, The Netherlands/Aachen, Germany)
Nanomedicine and theranostics
- 11:15 – 11:35 COFFEE BREAK
- 11:35 – 12:35** **Session 8: Towards clinical application**
Chairs – Michelle Epstein/Eberhard Fuchs (Vienna, Austria/Göttingen, Germany)
- 11:35 – 12:05 **Paolo Macor** (Trieste, Italy)
Optical imaging experiments studying the effects of the complement system
- 12:15 – 12:35 **Donna Arndt-Jovin** (Göttingen, Germany)
Tracking erbB mediated signal transduction by the combination of mutations, probes, and structured illumination with the optically-scanning programmable array microscope
- 12:35 – 13:00** **Discussion: Advantages and limitations of nanoparticles as imaging probes**
Chairs – Stefania Biffi/Frauke Alves/Vito Lorusso (Trieste/Göttingen/Trieste)
- 13:00 – 14:00 LUNCH
- 14:00 – 15:00** **Session 9: Experimental approaches in lung disease imaging**
Chairs – Dörthe Katschinski/Luis Pardo (Göttingen, Germany/Göttingen, Germany)
- 14:00 – 14:30 **Giuliana Tromba** (Trieste, Italy)
Potential application of synchrotron radiation in lung imaging
- 14:30 – 15:00 **Kai Licha** (Berlin, Germany)
Fluorescent probes for imaging of inflammation
- 15:00 – 16:00** **Session 10: Imaging of diseases of the brain and lung in clinical applications**
Chairs – Joachim Lotz/Stefan Andreas (Göttingen, Germany/Immenhausen, Germany)
- 15:00 – 15:30 **Juan Manuel Górriz Sáez** (Granada, Spain)
Analysis of SPECT brain images for the diagnosis of Alzheimer's disease
- 15:30 – 16:00 **Michael Puderbach** (Heidelberg/ Germany)
Imaging of lung disease in the clinic
- 16:00 – 16:15 **CLOSING REMARKS – Frauke Alves/Vito Lorusso** (Göttingen, Germany/Trieste, Italy)
- 16:15 COFFEE BREAK & DEPARTURE