PERSONALISED MEDICINE
DATA – DIAGNOSIS – DECISIONS

**18. – 20. MAY 2016
IN TÜBINGEN, GERMANY**

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WELCOME TO TÜBINGEN

It is a great pleasure and honour to welcome you all to the town and university of Tübingen.

The term Personalised Medicine has been extensively used within the last years to describe a paradigm shift in research and medical application towards an evidence based medicine.

We believe that personalised medicine is no longer an abstract concept but it is becoming reality.

The congress will address different topics of PM including high-throughput methods and data analysis, functional imaging in multiomics approaches, application of PM in clinical decision making and translation of PM into clinic.

„We look forward to hearing inspiring talks, brisk discussions with our experts and invite you to take part in this dialog."

Prof. Dr. Nisar P. Malek
Chairman of the Center for Personalised Medicine (ZPM), Medical Director of the Internal Medicine Department, Tübingen

EBERHARD KARLS UNIVERSITÄT TÜBINGEN

UNIVERSITÄTS KLINIKUM TÜBINGEN

ZPM
Center for Personalised Medicine

SPONSORS

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WORKSHOPS

To give you the possibility to discuss and learn about technologies and concepts in the field of personalised medicine we start our congress with interactive and interdisciplinary workshops on the first day, thus providing the opportunity to get in touch with interested people of theses research areas, to network and to be part of the community.

18TH MAY 2016

Registration	11:00 am
Introduction	12:00 am
» Personalised Medicine: An Introduction	
Lunch	
Work Shops	01:30-05:00 pm
» Texture Analysis in Multimodal Imaging and the Combination of Imaging and Omics » Individualised Drug Development: Fiction, Facts and Future » Personal Cancer Genomics: „Next generation sequencing: from basics to clinical application"	

19TH MAY 2016

Registration	from 08:00 am
Opening	08:45-09:00 am
Session 1: Personalised Medicine – current state	**09:00-11:15 am** Chair: N. Malek and O. Rieß

L. Hood	Key note: „Systems Medicine and Proactive P4 Medicine: Transforming Healthcare through Scientific Wellness"
H. Kroemer	„Translation of PM into clinics – Role of Information Technology"
L. Rudolph	„Aging in individual health and well-being"
H. Koseki	„Personalised Preventive Medicine: Modeling Chronic Dermatitis"

coffee break / poster exhibition / industry exhibition

Session 2: High-Throughput Methods in Individual Treatment	**11:45-01:30 pm** Chair: L. Zender and O. Kohlbacher

H.G. Rammensee	„Individualised Immunotherapy"
M. Schwab	„Pharmacogenomics"
M. Willmann	„Metagenomics for antibiotic selection pressure determination"

lunch break / poster exhibition / industry exhibition

Session 3: Big Data and Data Analysis	**02:30-04:30 pm** Chair: B. Pichler and D. Zips

R. Balling	„Interdisciplinary approaches to Parkinson´s Disease: Easier said than done"
A. Keller	„From Genomics to Systems Analysis"
O. Kohlbacher	„The iVac platform - Integrating HT-data for personalised cancer vaccines"
HJ. Ruscheweyh	„Automated Data Analysis in Cancer Genomics"

coffee break / poster exhibition / industry exhibition

poster session	05:00- 06:30 pm
get together – food & drinks	

20TH MAY 2016

Registration	from 08:00 am
Session 4: Imaging Technologies for Personalised Medicine	**09:00-11:00 am** Chair: K. Nikolaou and S. Ezziddin

B. Pichler	„Translation of Preclinical Multimodal Imaging"
F. Gallagher	„New Imaging Techniques for Personalised Medicine, hyperpolarized MR"
S. Trattnig	„Cutting-edge MR Technologies for Precise Diagnosis and Disease Staging"
D. Thorwarth	„Personalised Radiation Oncology based on hypoxia PET imaging"

coffee break / poster exhibition / industry exhibition

Session 5: The Need for Individualised Concepts	**11:30-01:45pm** Chair: G. Tabatabai and S. Laufer

T. Dingermann	„Need for translation "
D. Döcker	„Personalised Oncology"
S. Ezziddin	„Theranostics – Personalised Medicine in Radionuclide Therapy"
L. Zender	„Clinical Drug Discovery"

closing	01:45-02:00 pm

SYSTEMS MEDICINE AND PROACTIVE P4 MEDICINE: TRANSFORMING HEALTHCARE THROUGH SCIENTIFIC WELLNESS

Prof. Dr. Leroy Hood
President & Co-Founder of the Institute
for Systems Biology, Seattle, WA

Dr. Leroy E. Hood graduated from the Johns Hopkins University School of Medicine in 1964 and from Caltech with a PhD in biochemistry in 1968. After three years as a Senior Investigator at NIH, his academic career began at Caltech, where he and his colleagues developed the DNA gene sequencer and synthesizer, and the protein synthesizer and sequencer–four instruments that paved the way for the successful mapping and understanding of the human genome. A pillar in the biotechnology field, Dr. Hood has played a role in founding fifteen biotechnology companies including Amgen, Applied Biosystems, Integrated Diagnostics and Arivale. He is a member of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. Of the more than 6,000 scientists world-wide who belong to one or more of these academies, Dr. Hood is one of only fifteen people nominated to all three.

He is the recipient of numerous national and international awards, including the Lasker Award for Studies of Immune Diversity (1987), the Kyoto Prize in advanced technology (2002), the Heinz Award for pioneering work in Systems Biology (2006), and the coveted NAE 2011 Fritz J. and Delores H. Russ Prize for developing automated DNA sequencing. Dr. Hood has published over 750 peer reviewed articles and currently holds 36 patents. In 2013, he received the National Medal of Science from President Obama. Hood has been named by The Best Schools as one of the 50 Influential Scientists in the World Today (2014). Scientific American has named Hood as one of the top 6 in their selection of 100 biotech visionaries world-wide (2015).

TRANSLATION OF PM INTO CLINICS – ROLE OF INFORMATION TECHNOLOGY

Prof. Dr. Heyo Krömer
Chairman of Research and Teaching
and Dean of the Faculty of Medicine
Göttingen, Germany

Prof. Dr. Heyo K. Kroemer is professor of Pharmacology. Since September 2012, he has served as Dean and Chairman of Research and Teaching as well as Speaker of the Managing Board of the University Medical Center Göttingen.

Previously he was professor of Pharmacology and Toxicology at Ernst Moritz Arndt-University of Greifswald. From 2000 to 2012 he was dean of the medical faculty and since 2011 scientific director of the Medical Center of the University of Greifswald.

Prof. Kroemer completed his PhD at the Dr. Margarete Fischer-Bosch-Institute of Clinical Pharmacology in Stuttgart. After several research stays abroad, e.g. at the Biocenter of University of Basel and at the Department of Clinical Pharmacology of the Vanderbildt University in Nashville, he obtained his habilitation to teach Pharmacology and Toxicology at Eberhard-Karls-University Tübingen.

AGING IN INDIVIDUAL HEALTH AND WELL-BEING

Prof. Dr. K. Lenhard Rudolph
Director of the Leibniz Institute on Aging –
Fritz Lipmann Institute (FLI) Jena, Germany

K. Lenhard Rudolph is the scientific director of the Leibniz Institute on Aging - Fritz Lipmann Institute in Jena (www.leibniz-fli.de) since 2012 and appointed professor for molecular age research at the faculty for medicine of the Friedrich Schiller University Jena.

After completing medical studies in Göttingen and a residency in internal medicine with Michael P. Manns in Hannover, he engaged in postdoctoral studies with Ronald A. DePinho at the Albert Einstein College in New York and at the Dana Farber Cancer Institute in Boston. He headed an Emmy Noether Research Group in Hannover from 2001 to 2006 and the Max Planck Research Department at Ulm University from 2007 to 2012. K. Lenhard Rudolph has received several research awards including the Gottfried-Wilhelm Leibniz Award of the DFG in 2009, the Wilhelm Vaillant Award in Molecular Medicine in 2011, the Science award "Society needs science" of the Stifterverband for the German science system 2012, and in 2015 the German Cancer Award of the German Cancer Society as well as the Seneca medal for Aging Research of the Industrial Club of Düsseldorf.

The main focus of his current research is on molecular mechanisms of stem cell aging. Understanding the molecular causes of stem cell aging will enable the development of future therapies aiming to improve organ homeostasis and regenerative capacities during aging and to decrease the risk of age-related cancer formation.

PERSONALISED PREVENTIVE MEDICINE: MODELING CHRONIC DERMATITIS

Prof. Dr. Haruhiko Koseki
Deputy Director RIKEN IMS (Integrative
Medical Science) Tokyo, Japan

Dr. Haruhiko Koseki is currently Group Director of the Laboratory for Developmental Genetics at RIKEN Center for Integrative Medical Sciences and Deputy Director of the Center, as well as Visiting Professor at Chiba University and Keio University. He is on the editorial board of two publications: DNA and Cell Biology, and Development. He also serves as a committee member of the Wellcome Trust conference of Mouse Molecular Genetics.

He received his M.D. degree (1986) and Ph.D. (1990) from Chiba University, Japan. After he obtained his Ph.D., he was appointed Assistant Professor in 1990 and then Associate Professor in 1997 at the School of Medicine, Chiba University.

While he was Assistant Professor, he won one of the competitive Long-Term Fellowship from the Human Frontier Science Program Organization and did his postdoctoral research at Max Planck Institute of Immunobiology in Freiburg, Germany. In 1998 he was appointed Professor in the Department of Molecular Embryo-logy, Graduate School of Medicine, Chiba University and joined RIKEN in 2001.

INDIVIDUALISED IMMUNOTHERAPY

Prof. Dr. H.-G. Rammensee
Director of the Department of Immunology
Tübinge, Germany

Professor Dr. Hans-Georg Rammensee took up his studies of biology at the Eberhard Karls University in Tübingen in 1974. In 1982 he completed his PhD at the Max Planck Institute for Biology in Tübingen in the group of Professor Dr. Jan Klein. Following his postdoctoral studies at the Scripps Institute in La Jolla and at the Basel Institute of Immunology, Professor Rammensee again joined the Max Planck Institute for Biology where he was group leader of the laboratory of immunology from 1987 to 1993. During this time, Professor Rammensee also assumed teaching responsibilities at the University of Tübingen. From 1993 to 1996 Professor Rammensee was Head of the Department of Tumor-Virus Immunology in the German Cancer Research Center (DKFZ), and was also Professor at the University of Heidelberg. At present, Professor Rammensee is Head of the Department of Immunology at the University of Tübingen. He is deputy site coordinator of the German Consortium for Translational Cancer Research (DKTK) and Chairman of the Integrated Research Training Group, IRTG, Immunotherapy. Professor Rammensee is author of more than 400 articles, many of which have been published in top international journals including Nature, Cell and Science. For many years he has also been co-editor of several journals including Immunogenetics, Cellular and Molecular Life Science, European Journal of Immunology and others. He has received many prizes and awards, the most prestigious of which are the Paul Ehrlich and Ludwig Darmstaedter Prize in 1996, the Hansen Family Award (Bayer Science and Education Foundation) in 2013, the German Cancer Aid Award in 2014 and the Ernst Jung Prize for Medicine in 2016.

Professor Rammensee's work on MHC molecules and associated peptides is perceived to be a milestone in the history of immunology. Currently, he is dedicated to furthering the development of individualised cancer immunotherapy.

PHARMACOGENOMICS

Prof. Dr. Matthias Schwab
Head of the Dr. M. Fischer-Bosch-Inst. of Clinical Pharmacology (IKP) Stuttgart, Germany

Matthias Schwab studied medicine at the University Erlangen-Nuernberg, Germany followed by fellowships in Children's Medicine and Clinical Pharmacology with board certifications for both disciplines. He has held positions at the Dr. Margarete Fischer-Bosch-Institute of Clinical Pharmacology (IKP), Stuttgart, Germany and as visiting professor at St Jude Children's Research Hospital, Memphis, US. Since 2007 he is chair of Clinical Pharmacology at the University Tuebingen and director of the Department of Clinical Pharmacology, University Hospital Tuebingen and Dr. Margarete Fischer-Bosch-Institute of Clinical Pharmacology in Stuttgart. MS participates in and/or coordinates a number of national/international research networks and is member of several committees (e.g. President of the German Society of Experimental and Clinical Pharmacology and Toxicology, Member of the German National Academy of Sciences Leopoldina, Member of the Academy of Sciences and Literature, Mainz, Germany), received numerous awards, and is Editor of Pharmacogenetics & Genomics and Section Editor of Genome Medicine for Pharmacogenomics & Personalised Medicine.

His scientific accomplishments include >250 peer reviewed publications. His scientific interests focus on pharmacogenomics in cancer therapy particularly related to ADME genes under consideration of the application of novel technologies such as Omics platforms. In addition, his special interest lies in the implementation of research findings into clinical practice.

METAGENOMICS FOR ANTIBIOTIC SELECTION PRESSURE DETERMINATION

Prof. Dr. med. Matthias Willmann, MSc
Institute of Medical Microbiology and Hygiene
Tübingen, Germany

Prof. Willmann studied medicine at the Georg-August-Universität Göttingen. After his residency in the Comprehensive Infectious Diseases Center of the University of Ulm he obtained his Masters Degree in Tropical Medicine and International Health at the School of Hygiene and Tropical Medicine, London.

His work group "Clinical Genomics in Healthcare associated Infections" at the Institute of Medical Microbiology and Hygiene at the University of Tübingen is interested in healthcare associated infections that pose a major threat to modern medicine and the reduction of such infections is a high priority. However, the bright spectrum of infections and underlying pathogens as well as different patient conditions hamper classical epidemiological approaches. Clinical genomics uses novel sequencing techniques that can determine whole genomes of pathogens or even a genomic overview over populations of pathogens (metagenomics).

INTERDISCIPLINARY APPROACHES TO PARKINSON´S DISEASE: EASIER SAID THAN DONE

Prof. Dr. Rudi Balling
Director of the Luxembourg Centre for Systems
Biomedicine (LCSB) University of Luxembourg

Rudi Balling studied human and animal nutrition at the Universities of Bonn and Washington State University, USA and received his PhD in Human Nutrition from the University of Bonn, Germany. After completing research posts at the Samuel Lunenfeld Research Institute in Toronto Canada (1985-1986), the Max Planck Institute of Biophysical Chemistry in Göttingen (1987-1991) and the Max Planck Institute of Immunbiology in Freiburg, Germany (1991-1993), he became Director of the 'Institute of Mammalian Genetics' at the GSF National Research Center for Environment and Health in Munich. In 2001 he took over the position as Director of the Helmholtz-Centre for Infection Research in Braunschweig, Germany.

In 2009 he became founding Director of the Luxembourg Centre for Systems Biomedicine, an interdisciplinary centre of the University of Luxembourg dedicated to the analysis of neurodegenerative diseases through computational and system biology oriented approaches.

FROM GENOMICS TO SYSTEMS ANALYSIS

THE IVAC PLATFORM - INTEGRATING HT-DATA FOR PERSONALISED CANCER VACCINES

Prof. Dr. Andreas Keller
Head of The Chair for Clinical Bioinformatics, Saarland University, University Hospital , Germany

Prof. Dr. Oliver Kohlbacher
Director Quantitative Biology Center (QBiC) Tübingen, Germany

Prof. Dr. Andreas Keller is heading the Chair for Clinical Bioinformatics at the medical faculty of Saarland University and member of the Center for Bioinformatics. Before becoming full professor in 2013 at the age of 31, he worked for the Heidelberg based biomarker company febit biomed (2009-2011) and led the diagnostic innovation group at Siemens Healthcare (2011-2013). Keller holds a Ph.D. in computational biology and qualified as professor in human genetics at Saarland University Hospital. In his scientific career, he published 150 peer reviewed journal articles.

Besides scientific publications, Keller (co-)filed 56 patents in the area of biomarker research. Current research areas of Prof. Keller include the discovery and validation of multiplex biomarker signatures, genetic tests for improved therapy selection for multi drug resistant bacteria and complex systems biology approaches.

Since the Chair for Clinical Bioinformatics has a highly translational character, Keller works closely together with different companies to bring the research from bench to bedside. Besides joint research projects, he also works as consultant for different diagnostic and therapeutic companies and co-founded the Heidelberg-based biomarker company Hummingbird Diagnostics.

Research in the group of Oliver Kohlbacher (Chair for Applied Bioinformatics) focuses on method development for the analysis of high-throughput data, immunoinformatics, and structural bioinformatics. A particular focus is on the analysis of mass spectrometric data (proteomics, metaproteomics, metabolomics), for which his group has been developing open-source software (OpenMS) for a long time. Integrating these approaches, automating analyses and bringing the resulting workflows to the clinical application has been another focus of recent years.

Oliver Kohlbacher is also the director of the Quantitative Biology Center (QBiC) and a fellow of the Max Planck Institute for Developmental Biology in Tübingen.

AUTOMATED DATA ANALYSIS IN CANCER GENOMICS

Dr. Hans-Joachim Ruscheweyh
Post-Doc in Computational Biology,
Department of Biosystems Science and
Engineering, ETH Zurich

Hans-Joachim Ruscheweyh studied bioinformatics at the University of Tuebingen. After obtaining his diploma in 2010 he started as a PhD student in Daniel Huson's lab at the Center for Bioinformatics (Tuebingen). His work focused on metagenomic and amplicon sequencing data analysis as well as on developing management tools for analysis data. He obtained his PhD title in 2014 and consequently joined the group of Niko Beerenwinkel at the ETH Zurich (Basel). He is currently working on providing data management solutions for genomic data as well as on analysing NGS data for cancer genetics, immunogenetics and metagenomics.

TRANSLATION OF PRECLINICAL MULTIMODAL IMAGING

Prof. Dr. Bernd Pichler
Director of the Dept. of Preclinical Imaging
and Radiopharmacy Tübingen, Germany

Prof. Dr. Bernd Pichler is director of the Department of Preclinical Imaging and Radiopharmacy, Clinic of Radiology, University of Tübingen, Germany.

Dr. Pichler studied electrical engineering with a focus on biomedical engineering and cybernetics at the Technical University of Munich. He finished his diploma thesis in 1997 at the Max-Planck-Institute for Physics, Munich and the Department of Nuclear Medicine, Technical University of Munich, in the field of detector development for small animal positron emission tomography. He earned his PhD in physics at the Department of Nuclear Medicine, Technical University of Munich, in 2002 and subsequently worked as Assistant Biomedical Research Engineer (Assistant Research Professor) in the laboratory of Prof. Dr. Simon Cherry at the Department of Biomedical Engineering, University of California, Davis, USA, for two years.

Since 2005 he is head of the Laboratory for Preclinical Imaging and Imaging Technology at the Department of Radiology, University of Tübingen, and received the venia legendi (habilitation in experimental radiology) from the Eberhard Karls University Tübingen in 2007. In December 2007, Dr. Pichler accepted the call of the University of Tübingen for a full (W3) professorship in ''Preclinical Imaging and Imaging Technology''. In 2008 he became head of the Radiopharmacy and in 2011 both, the Laboratory for Preclinical Imaging of the Werner Siemens-Foundation and the Radiopharmacy joined, to become the Department of Preclinical Imaging and Radiopharmacy, with Prof. Pichler as director of the department.

NEW IMAGING TECHNIQUES FOR PERSONALISED MEDICINE, HYPERPOLARIZED MR

Prof. Dr. Ferdia Gallagher
University of Cambridge and CRUK Cambridge
Research Institute Cambridge, UK

Dr. Ferdia Gallagher studied medicine at the University of Cambridge and the University of Oxford and trained as a radiologist at Addenbrooke's Hospital in Cambridge.

He is currently a Cancer Research UK Clinician Scientist Fellow and an Honorary Consultant Radiologist in the Department of Radiology of the University of Cambridge and a Fellow of Gonville & Caius College, Cambridge. His main interest is in developing molecular imaging techniques for oncological radiology and how these can be translated into humans.

The focus of this work is to develop new molecular biomarkers for the detection of cancer, as well as methods to assess early response of tumours to treatment with chemotherapy.
He is particularly interested in the use of hyperpolarized carbon-13 MRI to study tissue metabolism and its applications for human disease.

CUTTING-EDGE MR TECHNOLOGIES FOR PRECISE DIAGNOSIS AND DISEASE STAGING

Prof. Dr. Siegfried Trattnig
Medical Director of the Centre of Excellence in high-field
MR Medical University of Vienna, Austria

Univ. Prof. Dr. Siegfried Trattnig graduated from the University of Vienna Medical School in 1985. He trained in Radiology and subsequently served as Assistant Medical Director and Acting Medical Director for the Section of Neuroradiology in the Department of Radiology. He was appointed as an Associate Professor in Radiology 1993 becoming the Acting Medical Director at the Clinical Magnetic Resonance Institute at the University of Vienna.

Since 2003 Prof. Trattnig has the position of the Medical Director of the Centre of Excellence in high-field MR. In 2010 he was appointed as a full Professor for Radiology with special focus on High field MR. Prof. Trattnig has pioneered the field of multi parametric and biochemical MR imaging of cartilage. He is currently the lead researcher on the clinical 7T & 3T projects.

Based on the results of clinical comparison studies between 3T and 7T his Center of Excellence for High Field MR was appointed as the international Reference Center for 7 Tesla by Siemens Healthcare. He is editorial board member of 8 scientific journals, member of 35 committees and working groups within the ISMRM, ESR, ESMRMB and the ICRS among the Executive Board member of the ESMRMB, member of the ESR Research Committee Board and Chairperson of the ESR Subcommittee Imaging Biomarker. He is an author of 431 articles in peer reviewed scientific journals and contributed to 25 scientific books. Additionally he has held 26 peer reviewed scientific grants with a total of funding money of 13.5 Mio €, received 12 scientific awards and is a reviewer for 34 scientific journals.

PERSONALISED RADIATION ONCOLOGY
BASED ON HYPOXIA PET IMAGING

NEED FOR TRANSLATION

Prof. Dr. Daniela Thorwarth
Head of the section of Biomedical Physics ,
University Department of Radiation Oncology,
Tübingen, Germany

Prof. Dr. Theodor Dingermann
Pharmaceutical Biology, Goethe University
Frankfurt, Germany

Daniela Thorwarth is a full professor for Biomedical Physics at the University of Tübingen, Germany. Following her graduation in Physics at the University of Stuttgart, Germany and Ecole Centrale Paris, France she obtained her PhD in Biomedical Physics from the University of Tübingen, Germany. Currently, Daniela Thorwarth is head of a Biomedical Physics research group focusing on different aspects of personalised treatment concepts in radiation onco- logy with a special interest in the combination of multi-scale data from genetics, molecular biology, functional imaging and clinical information for decision support and biologically individualised radiotherapy treatment planning.

Prof. Dr. rer. nat. Theodor Dingermann (1948) studied Pharmacy at the University of Erlangen- Nurnberg between 1973 and 1976. In 1980 he received his Ph.D. in Biochemistry. Between 1980 and 1982 he worked as a postdoctoral fellow at Yale University, New Haven, USA with Prof. Dr. Dieter Söll. From 1990 - 2013 he was professor and director of the Department of Pharmaceutical Biology at the Goethe-University Frankfurt/Main. Since 2013 he is affiliated with the Goethe-University as senior-professor.

Dingermann received 2010 the Carl-Mannich-Medal Award from the German Pharmaceutical Society, and he was elected "Professor of the Year 2009" in Germany. Dingermann is editor in chief of the international scientific journal DIE PHARMAZIE, editor in chief of "Pharmakon", the official journal of the German Pharmaceutical Society, and member of the group of chief editors of the "Pharmazeutische Zeitung".

Till 2014 Dingermann was the Representative for Biotechnology of the State of Hessen. From 1996 – 2000 he was vice-president and from 2000 – 2004 president of the German Pharmaceutical Society (DPhG). From 1998 – 2000 he served as vice president of the Goethe- University Frankfurt/Main.

PERSONALISED ONCOLOGY

THERANOSTICS – PERSONALISED MEDICINE IN RADIONUCLIDE THERAPY

Dr. Dennis Döcker
Practice of Human Genetics Tübingen,
Germany

Prof. Dr. Samer Ezziddin, MSc, MD
Professor of Nuclear Medicine at Saarland
University, Germany

Dennis Döcker, MD, graduated from medical school at the University of Tübingen in 2010. He started his clinical career in the Clinic of Anesthesiology and Intensive Care at Katharinenhospital, Klinikum Stuttgart. In 2012, Dennis decided to focus on clinical genetics and worked at the Institute of Clinical Genetics at Olgahospital, Klinikum Stuttgart, where he gained experience in molecular genetics, cytogenetics and genetic counseling.

Since 2015, Dennis is an employee of the Practice of Human Genetics Tübingen and the affiliated Center for Genomics and Transcriptomics (CeGaT GmbH). Along with clinical and molecular genetics, his passion is personalised oncology based on molecular analyses.

Samer Ezziddin, MD, is an expert on neuroendocrine tumors and targeted radionuclide therapy. His clinical research focuses on predictors and individualised approaches for targeted radiotherapy including dosimetry and molecular imaging for treatment planning and monitoring. His master thesis in Medical Device Clinical Sciences (MSc) addressed the potential impact of different radioembolization devices.

With his therapeutic focus in oncology and devotion to targeted treatment, Ezziddin, now appointed Head of the Nuclear Medicine Department at Saarland University Hospital, aims at individualizing and optimizing radionuclide-based targeted tumor therapy.

Prof. Dr. Lars Zender
Head of the Division of Translational Gastrointestinal
Oncology Tübingen, Germany

Lars Zender M.D., is Professor and Head of the Division of Gastrointestinal Oncology at the University Hospital Tübingen, Germany. Lars Zender's work focuses primarily on the identification of new cancer genes involved in liver cancer development. He developed novel mosaic (chimaeric) liver cancer mouse models, which allow for high throughput functional genomic analyses.

Together with a limited number of other laboratories worldwide, Lars Zender´s group has the expertise to conduct stable RNA interference screens for the identification and validation of new cancer genes directly in vivo.

Another key aspect in the scientific career of Lars Zender is his work on cellular senescence. In particular the Zender laboratory is studying the senescence associated secretory phenotype and how senescent tumor cells and pre-cancerous cells are recognized and cleared by the immune system. Recent work from Lars Zender´s laboratory showed that a continuous antigen specific immune clearance of premalignant senescent hepatocytes is crucial for tumor suppression in the liver.

Mining Metagenomic Data for Predictors of Yersinia enterocolitica Infection Outcome

Sina Beier (Centre for Bioinformatics, University Tübingen)
Yersinia enterocolitica infection in healthy mice leads to two outcome scenarios: Rapid weight loss and strong inflammation or moderate weight loss leading to recovery. 16S sequencing indicates potentially predictive bacterial species which make it possible to predict the outcome of infection.

Analysis of MRSA and ESBL colonisation patterns using machine learning methods

Anna Górska (Department of Computer Science, Center for Bioinformatics Tübingen)
Since the introduction of antibiotics for human therapy, physicians have witnessed growing number of antibiotic-resistant bacterial strains. Antibiotics exert ecological pressure on the community of human micro flora what allows colonisation by the multi-drug resistant strains such as MRSA or ESBLs.

Ciprofloxacin Impact on Human Gut Microbiome and Resistome

Mohamed El-Hadidi (Department of Computer Science, Center for Bioinformatics Tübingen)
We monitored the impact of Ciprofloxacin on intestinal microbiome and resistome of 2 subjects based on metagenomic sequencing data. Due to interpersonal differences, we observed differences in the abundance profile of antibiotic resistant genes (ARGs) and phylogenetic dynamics during and beyond the course of Ciprofloxacin administration.

Epigenomics in Parkinson's Disease – Genome-wide analysis of epigenetic signatures in a PD mouse model under environmental influences

Thomas Hentrich (Inst. f. Medical Genetics and Applied Genomics, Uni. Tübingen, Germany)
While genomic mutations and multiplications have been linked to familial cases of PD, they constitute only for about ten percent of all patients. The preponderance of PD cases cannot be explained by genetics alone and seems to occur sporadically.

Using cell-free DNA to monitor the course of disease in patients with head and neck squamous cell carcinoma treated with primary radiochemotherapy

Franz Joachim Hilke (Inst. f. Medical Genetics and Applied Genomics, Uni. Tübingen)
With the growing success of implementing next-generation-sequencing in cancer diagnostics it is now feasible to observe changes in the genetic composition of a tumor and its cell free DNA (ctDNA) by so called "liquid biopsy". Here we present this approach in a patient cohort with advanced HNSCC.

Characterisation of the gut microbial community of obese patients undergoing a weight-loss diet intervention using whole genome shotgun metagenomic sequencing

Rewati Mukund Tappu (Dep. of Computer Science, Center for Bioinformatics Tübingen)
Dysbiosis of the gut microbiome has been implicated in several diseases like obesity, metabolic syndrome and non-alcoholic fatty liver disease. In this study we characterized the gut microbiome composition of 16 obese patients who took part in a multidisciplinary weight loss program.

Automated Data Analysis in Cancer Genomics

Hans-Joachim Ruscheweyh (D-BSSE; ETH Zurich)
We present a fully automated analysis pipeline for Exome, Whole Genome and Transcriptome data in the context of cancer genomics. The pipeline integrates 18 tools such as aligners, quality control and variant callers. The pipeline can additionally be integrated in the data management system openBIS.

Interleukin-6 gene polymorphisms: a key in Personalised cancer patients' treatments

Yolande Saab (Pharmaceutical Sciences, Lebanese American University)
Recent advances in chemotherapy and targeted therapy have helped to improve the clinical outcomes in only a subset of cancer patients. Interleukin-6 (IL-6) is involved in the host immune defense mechanism. The gene encoding for IL-6 is highly polymorphic. The objective of the study is to investigate the role of IL-6 gene polymorphisms in Personalised cancer treatments.

DrugTargetInspector: An assistance tool for patient treatment stratification

Lara Schneider (Center for Bioinformatics, Saarland University)
DTI is an assistance tool for treatment stratification that analyzes genomic and transcriptomic datasets to provide information on deregulated drug targets, enriched biological pathways and deregulated subnetworks, as well as mutations and their potential effects on drugs and drug targets.

Simultaneous multiparametric F-18-FDG-PET/MRI in the evaluation of breast cancer: initial results

Heike Preibsch (Diagnostische und Interventionelle Radiologie, Universitätskl. Tübingen)
To evaluate the feasibility of simultaneous FDG-PET/MRI in breast cancer. PET/MR in breast cancer is feasible and provides excellent image quality and good alignment quality of PET and MRI. The used 4-channel breast coil currently leads to artifacts in PET which might impair the detection of small lesions in PET.

CURETINA: Personalised medicine for hereditary retinal distrophies

Katarina Stingl (Center for Ophthalmology, University of Tübingen)
Hereditary retinal distrophies are a very heterogeneous disease. At present no effective therapy exists. With the help of molecular and multi-modal diagnostic tools inclusively modern imaging technologies the phenotypic and genotypic diverse disease can be stratified very accurately. Several preclinical proof-of-concept studies could show the efficacy of individualised gene replacement therapy in this disease.

The role of MGMT, MLH1, MSH2, MSH6, PARP-1 and PMS-2 genes in cytotoxicity of Temozolomide of cell lines and tumour cells of primary patients with Glioblastoma.

Mehmet Taspinar (Yuzuncu Yil Univ., Faculty of Medicine, Dep. Medical Biology, Van Turkey)
Glioblastoma (GB), the most lethal brain tumour type in humans. One of the greatest challenges in the treatment is the development of chemotherapy resistance. There are some candidate genes for temozolomide resistance in GB. The aim of the study is to investigate the expression and methylation pattern of candidate genes in primary cell culture of patients with GB and cell lines.

Hypoxia image guided radiation dose escalation in patients with head and neck cancer: Results of a planned interim-analysis of a randomized phase II trial.

Daniela Thorwarth (Sec. f. Biomedical Physics, Uni. Hospital f. Radiation Oncology, Tübingen)
The aim of this phase II study was to evaluate feasibility and toxicity of hypoxia imaging guided radiation dose escalation (DE) in locally advanced head and neck squamous cell carcinoma (HNSCC) and to investigate the prognostic value of hypoxia PET imaging using [18F]-FMISO. ms of RT response than single parameters do.

Personalised postoperative radiochemotherapy in patients with head and neck cancer

Kerstin Zwirner (Radiation Oncology, University Hospital Tübingen)
The purpose of this demonstrator project in the Centre for Personalised Medicine Tübingen is to develop a multi-scale prediction model for radiotherapy outcome based on quantitative functional imaging, NGS and DNA repair capacity data in patients with head and neck cancer.

POSTER LIST

(up-to-date information and the complete poster list will be posted at the venue and will be available at the congress website)

Amelioration of cardiotoxic impacts of diclofenac sodium by vitamin B complex

Nadi Amin Abdulmajeed (Faculty of Science, King Abdulaziz University)
n.a.

MDR1 Promotor Methylation on Primary Glioblastoma (WHO grade IV) Patients

Sedat Cetin (Yuzuncu Yil University, Department of Biochemistry, Van, Turkey)
The most frequent and malignant brain tumor seen in the adults is Glioblastoma (GB). Tumor tissue were taken from the patients. Patients' clinical information and MDR1 methylation status of tumor tissues are compared for the effect on patients survival, resistance to chemotherapy and recurrence of the tumor.

Translational oncology: Identification of biomarkers from primary ovarian cancer tissue using DigiWest multiple protein profiling technology.

R.S. Haeussler (NMI Reutlingen, Germany)
Profiling of cellular signaling cascades requires more than RNA profiling, namely the detection of protein expression and activation. Our novel DigiWest protein profiling technology enables the parallel analysis of up to 600 total and phospho proteins, from <50µg of protein sample

The Application of Multi-gene Panel in Detection of Mutations in Women with Hereditary Breast and/or Ovarian Cancer

Ilnaz Sepahi (Inst. f. Medical Genetics and Applied Genomics, Uni. Tübingen)
Multi-gene panel testing for hereditary breast and ovarian cancer is broadly used recently in diagnostic laboratories. Here we present data from 505 patients with family history suspicious for HBOC. Our data suggests that pathogenic mutations can be found in genes other than standard diagnostic genes and that these mutations may be of relevant to the families.

Onctopus: A New Model for the Reconstruction of the Clonal and Subclonal Composition of Cancer Samples

Linda K. Sundermann (Inst. for Bioinformatics, Center for Biotechnology, Bielefeld University, Germany)
Recently, several methods that attempt to infer the genotype of subpopulations using CNVs, SSMs, or both have been published. Here, we present Onctopus , a new approach to jointly model and reconstruct the subclonal composition of a bulk tumor sample utilizing SSMs and CNVs.

Integrated PET/MR imaging of tumor response to fractionated irradiation in xenograft models of human HNSCC –a feasibility study

René Winter (University Hospital Tübingen, Radiation Oncology, Sect. f. Biomedical Physics)
Hypoxia is an important prognostic marker for radiotherapy (RT) response, particularly for head and neck tumors and may be measured using dedicated PET-tracers such as 18F-FMISO. Our hypothesis is that a suitable combination of different parameters derived from PET and functionalMR imaging would allow a better prediction.

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Sources: Picture p. 13: Markus Scholz für die Leopoldina