

# Programme



- 9:00 Arrival
- 9:20 Technical Introduction
- 9:30 Welcome by Geraldine Rauch and Axel R. Pries
- 9:45 Si-M Introduction by Andreas Thiel, Roland Lauster, Jennifer Rosowski and Shirin Kadler
- 10:15 Coffee break (5 min)

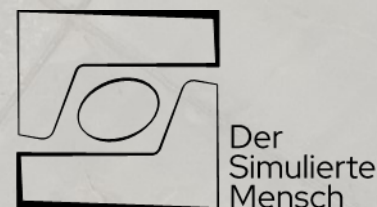
## Session 1

- 10:20 "Quality assuring measures for human model systems"  
by Maren Hülsemann, BIH QUEST Center for Responsible Research
- 10:30 "Bioorthogonal transition metal catalysis for anticancer therapies"  
by Ana Perez, Bioanalytics, TU Berlin
- 10:40 "Neo|Pancreas<sup>Print</sup> – 3D printed perfusable islet-containing tissue based on human decellularized pancreatic tissue derived bioink"  
by Eriselda Keshi, Experimental Surgery, Charité
- 10:50 "A 3D model for the survival niche of human long-lived bone marrow plasma cells"  
Zehra Uyar-Aydin, Medical Biotechnology, TU Berlin
- 11:00 "Immune-competent Human (multi)organ-on-a-chip models"  
by Anna-Catharina Krebs, BCRT and Institute of Med. Immunology, Charité
- 11:10 "Cardiovascular Modelling: Image-based Modelling of Heart Hemodynamics"  
by Leonid Goubergrits, Cardiovascular Modelling and Simulation, Charité
- 11:20 "Towards Design Automation for Organ-on-Chip Devices"  
by Robert Wille, TU München
- 11:30 Networking
- 12:00 Lunch break (30 min)

## Session 2

- 12:30 "Organoid Modeling of the Human Blood-Liver Niche as a Platform for High- Resolution Genomic Screens and Organoid-on-a-Chip technology"  
by Milad Rezvani, BCRT, Gastroenterology, Nephrology and Metabolic Medicine, Charité
- 12:40 "Data Management in Automated transdisciplinary laboratories"  
by Simon Seidel, Bioprocess Engineering, TU Berlin
- 12:50 "Understanding the dynamics and drivers of human NK cell clonal expansion"  
by Timo Rückert, Charité/DRFZ
- 13:00 "SMB activities in biomechanics"  
by Melika Mohammadkhan, Structural Mechanics and Analysis, TU Berlin
- 13:10 "Using urinary cells to monitor and simulate human kidney diseases"  
by Philipp Enghard, Nephrology and Medical Intensive Care, Charité
- 13:20 Networking
- 13:55 Closing words and Farewell

# Abstracts



## Speaker Table

|  |                      |
|--|----------------------|
| Quality assuring measures for human model systems  | Maren Hülsemann      |
| Bioorthogonal transition metal catalysis for anticancer therapies  | Ana Pérez-Lopez      |
| NeoPancreasPrint – 3D printed perfusable islet-containing tissue based on human decellularized pancreatic tissue derived bioink      | Eriselda Keshi       |
| A 3D model for the survival niche of human long-lived bone marrow plasma cells   | Zehra Uyar-Aydin     |
| Immune-competent Human (multi)organ-on-a-chip models   | Anna Krebs           |
| Cardiovascular Modelling: Image-based Modelling of Heart Hemodynamics  | Leonid Goubergrits   |
| Towards Design Automation for Organ-on-Chip Devices  | Robert Wille         |
| Organoid Modeling of the Human Blood-Liver Niche as a Platform for High-Resolution Genomic Screens and Organoid-on-a-Chip technology | Milad Rezvani        |
| Data Management in Automated transdisciplinary laboratories  | Simon Seidel         |
| Understanding the dynamics and drivers of human NK cell clonal expansion   | Timo Rückert         |
| SMB activities in biomechanics   | Melika Mohammad-khan |
| Using urinary cells to monitor and simulate human kidney diseases  | Philip Enghard       |

## Room 1 – Table 1

|   |                  |
|---|------------------|
| Simulating glucose metabolism using continuous glucose monitoring in different fasting forms  | Nico Steckhan    |
| Cardiovascular Modelling: Efficient Simulation Methods for Virtual Surgery  | Lars Walczak     |
| Developing microelectronics at the interface between medicine and technology  | Mario Birkholz   |
| Development and Utilization of an "Organ-in-a-shell" concept to study age-related effects on allograft quality prior to liver transplantation | Simon Moosburner |
| GlobalResist - Forecasting antibiotic resistance evolution: a new approach to address a major issue in global health                          | Sophie Becke     |

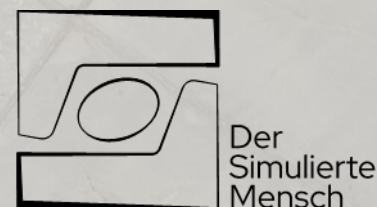
## Room 1 – Table 2

|   |                      |
|---|----------------------|
| Cardiovascular Modelling: In-Silico testing and validation of Cardiovascular Implantable devices (SIMCor) | Jan Brüning          |
| hiPSC derived 3D-model systems @ BIH Core Unit pluripotent Stem Cell and Organoids                        | Harald Stachelscheid |
| Bioprinting of Organ Models   | Jens Kurreck         |
| Biofabrication of synthetic human liver tissue with advanced programmable functions                       | Nils Haep            |

## Room 2 – Table 3

|  |                    |
|--|--------------------|
| Cardiovascular Modelling: Synthetic Vessel Geometries to augment clinical Data for Machine Learning Applications | Pavlo Yevtuschenko |
| Personalised, Pain-free Training with Biofeedback  | Roxanne Jackson    |
| Mechano-biological optimization of trauma and orthopaedic medical devices through computer modelling approaches  | Sara Checa         |
| Role of innate cells in the pathogenesis of Juvenile Idiopathic Arthritis (JIA)                                  | Oliver Knight      |

# Abstracts



## Room 2 – Table 4

|  |                 |
|--|-----------------|
| Toxicological potential of fungal volatile metabolites in in vitro respiratory test systems  | Kustrim Cerimi  |
| Immunocompetent skin-on-a-chip platform for in-vitro efficacy testing of immune-checkpoint immunotherapy in melanoma                 | Irit Vahav      |
| Patient-derived airway models to advance diagnostics and precision medicine for cystic fibrosis and other rare genetic lung diseases | Anita Balász    |
| Quantitative Systems Metabolism: Applications in basic research and personalized medicine  | Nikolaus Berndt |

## Room 3 – Table 5

|  |                                   |
|--|-----------------------------------|
| Unravelling the developmental pathways of human innate lymphoid cell from tissue-derived CD34+ hematopoietic progenitors through ex vivo multi-omics and in vitro approaches | Daniela Carolina Hernández Torres |
| hiPSC-derived adrenocortical cell model  | Nhi Tran & Ute Scholl             |
| Systematic analyses of transcriptional programs in three-dimensional tissue culture models of pancreatic neoplasia with defined genomic alterations in driver genes.         | Matthäus Felsenstein              |
| Cardiovascular modelling: experimental methods to simulate human organ and blood physiology  | Michael Lommel                    |

## Room 3 – Table 6

|  |                 |
|--|-----------------|
| Modelling of novel protein-protein interactions identified by crosslinking mass spectrometry | Alexander Rau   |
| Epitope mapping of clinically relevant antibodies by advanced proteomics                     | Kendra Njo      |
| Functional investigation of ex vivo human brain tissue pathophysiology <i>in vitro</i>       | Laura Monni     |
| Proteomic characterization of the human liver matrisome in health and disease                | Assal Daneshgar |

## Room 4 – Table 7

|  |                          |
|--|--------------------------|
| Interrogation and modelling of human intestinal innate lymphoid cell niches and their alteration in inflammatory bowel disease and cancer progression  | Nils Müller              |
| The role of zinc for the human glycome   | Maria Maares             |
| Decellularized human liver scaffolds as a novel 3D platform to mimic colorectal liver metastases in vitro  | Karl Herbert Hillebrandt |
| Patient specific cancer treatment with Circulating Tumor Cells   | Paul Geus                |
| Reconstructing the triadic relationship of primary patient-derived lymphoma, the immune system and drug-related liver metabolism on multi-organ chips to emulate senescence-evoked T-cell immune responses | Anna Walter              |