

# 4<sup>th</sup> International Symposium

## Systems Biology of Microbial Infection

### S<sub>2</sub>B<sub>0</sub>M<sub>1</sub>I<sub>7</sub>

Thursday, September 21, 2017

12:00-12:30 Registration & Light Lunch

12:30-12:40 Opening

Marc Thilo Figge (Hans Knöll Institute, Jena, Germany)

**12:40-13:30 Meta Systems Biology and Network-Based Drug Design**  
Hans V. Westerhoff (University of Amsterdam, The Netherlands)



**Microbial Infections & Sepsis (Session Chairs: Sandra Timme & Maria Prauße)**

**13:30-13:50 Modelling A. fumigatus and C. albicans Infections: From Strategies and Evolution of Virulence to Protein Interactions and Dynamics of Host and Pathogen**  
Johannes Balkenhol (University of Würzburg, Germany)



**13:50-14:10 A Mathematical Model of Indoleamine 2,3-dioxygenase-mediated Degradation of Tryptophan along the Kynurenine Pathway**  
Dana Kleimeier (Greifswald University Hospital, Germany)



**14:10-14:40 Quantification of the Innate Immune Function in Whole-Blood Infection Assays Reveals Pathogen-dependent Immune Defence of Different Sepsis Phases**  
Ines Leonhardt & Teresa Lehnert (Hans Knöll Institute, Jena, Germany)



**14:40-15:00 Infection-on-chip: Staphylococcus aureus Infection in a Human Liver-on-chip Model**  
Alexander S. Mosig (Jena University Hospital, Germany)



15:00-15:20 Break

**15:20-15:50 Analysis of Mitochondrial Granularity in Hepatic Ischemia-reperfusion Injury**  
Adrian Press & Anna Medyukhina  
(Jena University Hospital & Hans Knöll Institute, Germany)



**15:50-16:20 Carotenoid-dependent Behavioural Responses of Macrophages Confronted with a Filamentous Fungus Causing Mucormycosis**  
Sebastian Germerodt & Nora Trinks  
(Friedrich Schiller University Jena & University of Würzburg, Germany)



**16:20-16:50 Automated Image Analysis of the Interaction between Lichtheimia spp. and Macrophages**  
Mohamed Abdelwahab Hassan & Zoltán Cseresnyés  
(Hans Knöll Institute, Jena, Germany)



**16:50-17:40 Mathematical Modelling of *Streptococcus pneumoniae* Colonization, Invasive Infection and Treatment**  
Reiko J. Tanaka (Imperial College London, United Kingdom)



**18:00 Dinner**

**18:30 Poster Session**

**Friday, September 22, 2017**

**Networks & Biomarkers (Session Chair: Francesco Pezzini)**

**9:00-9:50 Host Response in Tuberculosis**  
January Weiner (Max Planck Institute for Infection Biology, Berlin, Germany)



**9:50-10:10 Modeling the Metabolic Reprogramming of Activated Macrophages**  
Franziska Hörlhold (Hans Knöll Institute, Jena, Germany)



**10:10-10:30 Detection of Human Biomarkers for Fungal Infections**  
Jörg Linde (Hans Knöll Institute, Jena, Germany)



**10:30-11:00 Break**

**11:00-11:20 Analysis of Large-scale Host-fungi-interaction Networks of *Aspergillus fumigatus* and *Candida albicans***  
Christian Luther (University of Würzburg, Germany)



**11:20-11:50 Prediction of Host-pathogen Interactions via Dual RNA-seq of *Candida* Blood Infections**  
Philipp Kämmer & Thomas Wolf (Hans Knöll Institute, Jena, Germany)



**12:00-13:00 Lunch Break**

**Therapy & Drug Resistance (Session Chair: Yueqiong Ni)**

**13:00-13:50 Collateral Sensitivity Network Outlines the Path to Targeted Strategies Against Resistance**  
Leila Imamovic (Technical University Denmark, Kongens Lyngby, Denmark)



**13:50-14:20 Tailoring Immune Therapeutic Approaches for Treating Secondary Bacterial Infections During Severe Influenza Infections**  
Esteban A. Hernandez-Vargas & Niharika Sharma  
(Frankfurt Institute for Advanced Studies & Otto-von-Guericke University Magdeburg, Germany)



**14:20-14:40 Multi-omics Analysis Reveals Dynamics and Multilevel Interactions of Gut Microbes upon Antibiotic Exposure**  
Jun Li (Hans Knöll Institute, Jena, Germany)



**14:40-14:50 Concluding remarks**  
Gianni Panagiotou (Hans Knöll Institute, Jena, Germany)