

4th International Symposium

Systems Biology of Microbial Infection

S₂B₀M₁I₇

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 Hörhold (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*
Lejla 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)