



2nd International Workshop
Systems Biology of Microbial Infection

S₂B₀M₁I₃

September 19–20, 2013, Jena, Germany

Leibniz Institute for Natural Product Research and Infection Biology – Hans Knöll Institute
HKI-Center for Systems Biology of Infection, Beutenbergstrasse 11a, D-07745 Jena

Organized by the HKI with BioControl Jena GmbH with support from the Jena School for Microbial Communication (JSMC),
the International Leibniz Research School (ILRS) and the Jena Centre for Bioinformatics JCB

Thursday, September 19, 2013

12.30-13.00 **Registration**

13.00-13.10 **Opening**
Marc Thilo Figge (*Hans Knöll Institute, Jena, Germany*)

Systems Biology of Infection from a Clinical Perspective

13.10-14.00
Mathematical modeling of host-pathogen interaction exemplified for *C. albicans* infection
Edda Klipp (*University of Berlin, Germany*)

14.00-14.30
Liver (dys)function in the septic host – patterns of response and injury
Michael Bauer (*Jena University Hospital, Center for Sepsis Control and Care, Germany*)

14:30-15.00
The dynamics of septic shock – Lessons learned by the MEDAN project
Rüdiger Brause (*University of Frankfurt /Main, Germany*)

15.00-15.20
Modeling the first step of Biomaterial-associated infections: Influence of surface properties on bacterial adhesion
Daniel Siegismund (*Friedrich Schiller University Jena, Germany*)

15:20-15.50 **Break**

Systems Biology of *Candida* Infection

15.50-16.20

Pathogenicity mechanisms of *C. albicans* and *C. glabrata*

Bernhard Hube (*Hans Knöll Institute, Jena, Germany*)

16.20-16.50

From bloodstream infection to sepsis and dissemination: Networks of immune reaction in human blood

Oliver Kurzai (*Jena University Hospital, Centre for Innovation Competence Septomics, Germany*)

16.50-17.10

A virtual infection model quantifies innate effector mechanisms and *C. albicans* immune escape in human blood

Teresa Lehnert (*Hans Knöll Institute, Jena, Germany*)

17.10-17.30

Understanding the Survival Strategies of *C. albicans* During Host-Pathogen Interactions

Komalpriya Chandrasekaran (*University of Aberdeen, UK*)

19:00 **Get together** (*Barbecue at the 'Jägerberg'*)

Friday, September 20, 2013

Systems Biology of *Aspergillus* Infection

9.00-9.30

Use of RNA seq to understand the vegetative growth of *A. fumigatus* during infection

Jean-Paul Latge (*Unité des Aspergillus, Institut Pasteur, Paris, France*)

9.30-10.00

The role of iron in virulence of *A. fumigatus*

Hubertus Haas (*University of Innsbruck, Austria*)

10.00-10.20

Cell-wall focused network inference on transcriptome data of *A. fumigatus*

Robert Altwasser (*Hans Knöll Institute, Jena, Germany*)

10.20-10.50 **Break**

10.50-11.20

Multimodality analysis of antifungal immune responses

Matthias Gunzer (*University Duisburg-Essen, Germany*)

11.20-11.40

On the first-passage-task of alveolar macrophages to detect *A. fumigatus* conidia

Johannes Pollmächer (*Hans Knöll Institute, Jena, Germany*)

11.40-12.00

Mathematical modelling for the contribution of epithelial cells to *A. fumigatus* lung infection

Reiko Tanaka (*Imperial College London, UK*)

12.00-13.30 **Lunch Break**

Miscellaneous Aspects of the Systems Biology of Infection

13.30-13.50

RNA-Seq driven prediction of coding and non-coding genes for *C. glabrata*

Jörg Linde (*Hans Knöll Institute, Jena, Germany*)

13.50-14.10

PHISTO: A new web platform for pathogen-human interactions

Saliha Durmus Tekir (*Boğaziçi University, Bebek-İstanbul, Turkey*)

14.10-14.30

Human soluble Complement Receptor Type 2 (CR2/CD21): a microbial immune evasion protein?

Denise Buhlmann (*Hans Knöll Institute, Jena, Germany*)

14.30-14.50

In-silico drug design for *Mycoplasmal Pneumonia*

Kumar Singh (*Friedrich Schiller University Jena, Germany*)

14.50-15.10

Mathematical modelling of influenza A virus infection and antiviral therapy

Himanshu Manchanda (*University Hospital Jena, Germany*)

15.10-15.20 **Concluding remarks**

Reinhard Guthke (*Hans Knöll Institute, Jena, Germany*)