

Integrative Network Inference in Systems Biology

8th-9th October 2009, Jena/Germany

Technologie- und Innovationspark TIP Jena, 3rd Floor,
Beutenberg Campus, Wildenbruchstr. 15, D-07745 Jena

Organised by the Leibniz Institute for Natural Product Research and Infection Biology - Hans Knöll Institute - and BioControl Jena GmbH with Support from the Jena Centre for Bioinformatics JCB, the Jena School for Microbial Communication JSMC, the German BMBF Systems Biology Programmes HepatoSys and FORSYS and the German Research Foundation DFG Priority Programme SPP 1160

Programme 8th October 2009

- 08.45 - 09.15 *Registration*
- 09.15 - 09.30 **Welcome, Introduction and Programme Overview**
R. Guthke (Hans Knöll Institute, Jena, Germany)
- 09.30 - 10.00 **Gene Expression Prediction by Soft Integration and the Elastic Net**
M. Hörnquist (Linköping University, Norrköping, Sweden)
- 10.00 - 10.30 **Systems Analysis of Gene Regulatory Networks**
M. Gustafsson (Linköping University, Norrköping, Sweden)
- 10.30 - 11.00 **Boolean Satisfiability Based Hypotheses Finding for Systems Biology**
A. Bhalla (Technocrats Institute of Technology, Bhopal, India)
- 11.00 - 11.30 *Break*
- 11.30 - 12.00 **Approximate Bayesian Inference of Biological Signalling Dynamics**
M. Stumpf (Imperial College London, England)
- 12.00 - 12.30 **Network Inference from RNAi Data**
B. Knapp, L. Kaderali (University of Heidelberg, Germany)
- 12.30 - 13.00 **Reconstruction of Signalling Networks from Gene Intervention Data**
T. Beißbarth (University of Göttingen, Germany)
- 13.00 - 14.00 *Lunch Break*
- 14.00 - 14.30 **Learning Gene Regulatory Networks from Gene Expression Time Series with Non-stationary Dynamic Bayesian Networks**
D. Husmeier (Biomathematics & Statistics Scotland, Edinburgh, Scotland)
- 14.30 - 15.00 **Modelling *Escherichia coli* Response to Stress Using State Space Models**
F. Falciani (University of Birmingham, England)
- 15.00 - 15.30 **Comparison of Information-theoretical Algorithms for the Inference of Gene Regulatory Networks in *Escherichia coli***
S. Friedel (Hans Knöll Institute, Jena, Germany)
- 15.30 - 16.00 **Predicting Gene Regulatory Networks in *Candida albicans* During Oral Infection**
J. Linde (Hans Knöll Institute, Jena, Germany)
- 16.00 - 16.30 *Break*
- 16.30 - 17.00 **Isolation of Murine Hepatocytes Primes Cells for Proliferation**
S. Zellmer (University of Leipzig, Germany)
- 17.00 - 17.30 **Gene Regulatory Network Inference for Murine Hepatocytes in Response to Cultural Media Exchange**
W. Schmidt-Heck, S. Zellmer, R. Gebhardt, R. Guthke
(Hans Knöll Institute, Jena; University of Leipzig, Germany)
- 17.30 - 18.00 **Predicting and Perturbing Gene Regulatory Networks for Murine Liver Regeneration Experiments by Combined Microarray and Knowledge Driven Analysis**
S. Lambeck (Hans Knöll Institute, Jena, Germany)
- 19.30 *Get-Together (Not Included in the Registration Fee)*



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Programme 9th October 2009

- 09.00 - 09.30 **Unravelling the Network Behind Lineage Specification of Stem Cells**
E.P. van Someren (Radboud University Nijmegen, The Netherlands)
- 09.30 - 10.00 **Integrative Modelling of Gene Regulatory Networks Using TILAR**
M. Hecker (Hans Knöll Institute, Jena, Germany)
- 10.00 - 10.30 **Inferring Mammalian Transcription Regulatory Networks Using Deep Sequencing Data**
E. van Nimwegen (University of Basel, Switzerland)
- 10.30 - 11.00 **Network Inference from Transcriptome Monitoring of the Response of Synovial Fibroblasts from Rheumatoid Arthritis and Osteoarthritis Patients to TNF-alpha and TGF-beta**
M. Weber, R. Guthke, R.W. Kinne
(Hans Knöll Institute, Jena; University of Jena, Germany)
- 11.00 - 11.30 *Break*
- 11.30 - 12.00 **ProDGe: A Sequence and Protein-Protein Interaction Viewer**
F. Büchel, F. Mittag, A. Schröder, A. Dräger, A. Zell
(University of Tübingen, Germany)
- 12.00 - 12.30 **Inference of the Genetic and Proteomic Pathways that Control the β -Adrenergic-Induced Electrophysiological Instability in Cardiac Myocytes**
R. Westra (University of Maastricht, The Netherlands)
- 12.30 - 13.00 **Noise Regulation versus Deterministic Control in Biological Systems**
M. Hoffmann (University of Leipzig, Germany; University of Maastricht, The Netherlands)
- 13.00 - 14.00 *Lunch Break*
- 14.00 - 14.30 **The Metabolic Context of Signalling Processes**
J. Selbig (University of Potsdam and Max Planck Institute of Molecular Plant Physiology, Potsdam-Golm, Germany)
- 14.30 - 15.00 **Systematic Investigation of the Glucose Signalling Pathways in *Saccharomyces cerevisiae* through mRNA Expression Profiling**
K. Sameith, E. Apweiler, M. Groot Koerkamp, D. van Leenen, P. Kemmeren, F.C.P. Holstege (University Medical Center, Utrecht, The Netherlands)
- 15.00 - 15.30 **Reverse Engineering by Artificial Network Evolution**
T. Hinze (University of Jena, Germany)
- 15.30 - 16.00 **Reverse Engineering of Gene Networks: Limitations of Present Methods and Future Perspectives**
A.-P. Zeng, F. He (Hamburg University of Technology; Helmholtz Centre for Infection Research, Braunschweig, Germany)
- 16.00 - 16.10 **Concluding Remarks**
M. Pfaff (BioControl Jena GmbH, Jena, Germany)
- 17.00 *Farewell Barbecue*

