

Gene Regulatory Network Inference

25th-26th September 2008, 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 Knoell Institute - and BioControl Jena GmbH with Support from the Jena Centre for Bioinformatics JCB and within the Framework of the German BMBF Systems Biology Programmes HepatoSys and FORSYS and the German Research Foundation DFG Priority Programme SPP 1160



Programme 25th September 2008

- 12.30 - 13.00 *Registration*
- 13.00 - 13.15 **Welcome, Introduction and Programme Overview**
R. Guthke (Hans Knoell Institute, Jena, Germany)
M. Pfaff (BioControl Jena GmbH, Jena, Germany)
- 13.15 - 13.45 **Models and Computational Strategies**
Linking Physiological Response to Molecular Networks from Large-Scale Data
F. Falciani (University of Birmingham, England)
- 13.45 - 14.15 **Statistical Inference of Gene Regulatory Networks with Differential Equations**
L. Kaderali (University of Heidelberg, Germany)
- 14.15 - 14.45 **Nested Effects Models for Learning Signalling Networks from Perturbation Data**
H. Froehlich, A. Tresch, T. Beissbarth
(German Cancer Research Center, Heidelberg, Germany; Ludwig Maximilians University, Munich, Germany)
- 14.45 - 15.15 *Break*
- 15.15 - 15.45 **The Reconstruction of Hierarchic and Scale-Free Gene-Protein Networks**
R. Westra (University of Maastricht, The Netherlands)
- 15.45 - 16.15 **Systematic Characterisation of the Glucose Signalling Pathways through mRNA Expression Profiling**
E. Apweiler, K. Sameith, P. Kemmeren, M. Groot Koerkamp, D. van Leenen, F.C.P. Holstege (University Medical Center, Utrecht, The Netherlands)
- 16.15 - 16.45 **Multi-Objective Network Inference and its Application to the DREAM Five Gene Network Challenge**
S. Lambeck (Hans Knoell Institute, Jena, Germany)
- 16.45 - 17.00 *Break*
- 17.00 - 17.30 **Inference of Gene Regulatory Networks in *Escherichia coli* using Directed Information**
C. Kaleta (Hans Knoell Institute, Jena, Germany)
- 17.30 - 18.00 **Inference of Transcriptional Effects Leading to Pathogenesis in *Candida albicans* - Application of Hidden Markov Models**
K. Gruetzmann (Hans Knoell Institute, Jena, Germany; Friedrich Schiller University, Jena, Germany)
- 19.00 *Get-Together*

Gene Regulatory Network Inference

25th-26th September 2008, 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 Knoell Institute - and BioControl Jena GmbH with Support from the Jena Centre for Bioinformatics JCB and within the Framework of the German BMBF Systems Biology Programmes HepatoSys and FORSYS and the German Research Foundation DFG Priority Programme SPP 1160

Programme 26th September 2008

- 09.00 - 09.30** **Comparative Network Analysis**
J. Selbig (Max Planck Institute of Molecular Plant Physiology, Potsdam-Golm and University of Potsdam, Germany)
- 09.30 - 10.00** **Fixed Point Analysis in Biological Networks with Interlocked Feedback Circuits**
N. Radde (University of Leipzig, Germany)
- 10.00 - 10.30** **Integration of Prior Knowledge into the NetGenerator Algorithm for Network Inference**
S. Toepfer, D. Driesch, D. Woetzel, M. Pfaff (BioControl Jena GmbH, Jena, Germany)
- 10.30 - 11.00** **Assessment of Network Inference Methods with Synthetic Data Simulating Realistic Conditions**
S. Priebe (Hans Knoell Institute, Jena, Germany)
- 11.00 - 11.30** *Break*
- 11.30 - 12.00** **Reverse Engineering the Network of Stem Cell Lineage Specification**
E.P. van Someren (Radboud University Nijmegen, The Netherlands)
- 12.00 - 12.30** **Integrative Modelling of Gene Regulatory Interactions Relevant in Antirheumatic Therapy**
M. Hecker, R. Goertsches, D. Koczan, J. Kekow, H.-J. Thiesen, R. Guthke (Hans Knoell Institute, Jena, Germany; University of Rostock, Germany; University of Magdeburg, Germany)
- 12.30 - 13.00** **Network Inference for Perturbed Fibroblasts from Rheumatoid Arthritis Patients**
R. Guthke, C. Hummert, R. Huber, D. Pohlers, D. Koczan, R.W. Kinne (Hans Knoell Institute, Jena, Germany; University Hospital, Jena, Germany; University of Rostock, Germany)
- 13.00 - 13.45** *Lunch Break*
- 13.45 - 14.15** **Inference of Gene Regulatory Networks in Xenobiotic Detoxification Based on Sequence Analysis and Microarray Data**
A. Schroeder, A. Draeger, C. Wrzodek, J. Supper, A. Zell (University of Tuebingen, Germany)
- 14.15 - 14.45** **Isolation and Cultivation of Hepatocytes Effects Gene Expression Pattern - A Comparative Study**
S. Zellmer, W. Schmidt-Heck, T. Sparna, A. Bauer, T. Lehmann, C. Kern, C. Kreutz, J. Timmer, F. v. Weizsäcker, J. Hengstler, I. Merfort, R. Gebhardt (University of Leipzig; Hans Knoell Institute, Jena; University of Freiburg; University of Bielefeld; Leibniz Research Centre, Dortmund; Germany)
- 14.45 - 15.15** **Network Inference for Hepatocytes Perturbed by Fresh Medium**
W. Schmidt-Heck, S. Zellmer, R. Gebhardt, R. Guthke (Hans Knoell Institute, Jena, Germany; University of Leipzig, Germany)
- 15.15 - 15.30** **Closing Remarks**
M. Pfaff (BioControl Jena GmbH, Jena, Germany)
R. Guthke (Hans Knoell Institute, Jena, Germany)

