



QUANTITATIVE APPROACHES IN CELL BIOLOGY

*BIOPHYSICS, BIOENGINEERING &
SYSTEMS BIOLOGY*

SignGene Symposium 2014

August 31 - September 2, 2014

Max Delbrück Center for Molecular Medicine
Berlin, Germany

www.mdc-berlin.de/signgenesymposium2014



August 31

Location: NH Hotel Berlin-Mitte, Leipziger Str. 106-111, 10117 Berlin

- 17:00 *Begin Registration (Hotel Lobby)*
- 17:30 - 18:20 *Champagne Reception*
- 18:20 - 18:30 *Welcome & Introduction*
Amit Meller & Andreas Herrmann
- 18:30 - 20:00** ***Opening keynote session: Evolution of networks - lessons from bacteria***
Chair: Nikolaus Rajewsky
- 18:30 - 19:15 **„Multi-step mutational paths leading to high antibiotic resistance“**
Roy Kishony, Technion - Israel Institute of Technology, Haifa, Israel & Harvard Medical School, Boston MA, USA
- 19:15 - 20:00 **„Optimality and robustness of signaling in bacteria“**
Victor Sourjik, Max Planck Institute for Terrestrial Microbiology, Marburg, Germany
- 20:00 *Dinner (Speakers, SignGene and IRI-LS members)*

September 1

Location: Max Delbrück Center for Molecular Medicine (MDC), Robert Rössle Str. 10, 13125 Berlin

MDC Communications Center (MDC.C) Axon 2

- 8:00 - 9:00 *Registration & Coffee, MDC.C Foyer & Axon 2*
- 9:00 - 10:45** ***Session I: Cell signaling in numbers***
Chair: Jane Joy Thomas
- 9:00 - 9:35 **„Yeast pheromone response in space and time“**
Edda Klipp, Humboldt-Universität zu Berlin, Germany
- 9:35 - 10:10 **„Quantitative assessment of regulatory networks in the NF-kappaB system“**
Jana Wolf / Claus Scheidereit, MDC Berlin, Germany
- 10:10 - 10:45 **„To respond and adapt: long-term dynamics of TGFbeta signaling in single cells“**
Alexander Loewer, BIMS / MDC Berlin, Germany
- 10:45 - 11:15 *Coffee break*

September 1 cont.

- 11:15 - 12:35** **Session II: Physics of movement within and into cells**
Chair: Christian Lips
- 11:15 - 12:00 **Special Talk: „Morphogenetic functions of actomyosin“**
Stephan Grill, Max Planck Institute of Molecular Cell Biology,
Dresden, Germany
- 12:00 - 12:35 **„Single-virus-force spectroscopy unravels molecular details of virus infection“**
Andreas Herrmann, Humboldt-Universität zu Berlin, Germany
- 12:35 - 13:30 *Lunch, MDC.C Foyer*
- 13:30 - 15:30** **Poster Session, MDC.C Foyer**
- 15:30 - 16:40** **Session III: Metabolic networks**
Chair: Ilka Wilhelmi
- 15:30 - 16:05 **„TITLE TBD“**
Matthias Heinemann, University of Groningen, Netherlands
- 16:05 - 16:40 **„Evaluating metabolic tumor therapy using pSIRM (pulsed stable isotope resolved metabolomics“**
Stefan Kempa, BIMSB / MDC Berlin, Germany
- 16:40 - 17:00 *Coffee break*
- 17:00 - 18:10** **Session IV: Proteomic approaches in signaling and gene expression**
Chair: Inbal Ipenberg
- 17:00 - 17:35 **„Large scale mapping of PTM induced changes in the protein-protein-interactions of transcription factor C/EBPbeta“**
Gunnar Dittmar, MDC Berlin, Germany
- 17:35 - 18:10 **„Proteome dynamics“**
Matthias Selbach, MDC Berlin, Germany
- 19:30 *Dinner boat tour (Speakers, SignGene and IRI-LS members)*

September 2

*Location: Max Delbrück Center for Molecular Medicine (MDC), Robert Rössle Str. 10, 13125 Berlin
MDC Communications Center (MDC.C) Axon 2*

8:00 - 9:00

Coffee

9:00 - 10:35

Session V: Probing DNA and its functions at the single-molecule level

Chair: Ivan Haralampiev

9:00 - 9:45

Special Talk: „Solving mysteries in biology - the power of one“

Michelle Wang, Cornell University, Ithaca NY, USA

9:45 - 10:20

„Towards genotyping and sequencing DNA using nanopores“

Amit Meller, Technion - Israel Institute of Technology, Haifa, Israel

10:20 - 10:50

Coffee break

10:50 - 12:15

Session VI: RNA/DNA-protein interactions in gene expression

Chair: Severin Ehret

10:50 - 11:25

„Lin28 and Roquin: structural insight into gene expression regulation by RNA-binding proteins“

Udo Heinemann, MDC Berlin, Germany

11:25 - 12:00

„Beyond the consensus: the role of flanking regions on transcription factor binding“

Yael Mandel-Gutfreund, Technion - Israel Institute of Technology, Haifa, Israel

12:00 - 12:15

„Detection of K-Ras mutations using solid state nanopores“

Yana Rozevsky, Technion - Israel Institute of Technology, Haifa, Israel

12:15 - 14:15

Lunch break, MDC.C Foyer

14:15 - 17:40

Session VII: Understanding and engineering gene expression networks

Chairs: Simon Prisner and Marie-Christin Lampe

14:15 - 15:00

Special Talk: „Image-based single-cell approaches to dissect probabilistic biological phenomena“

Lucas Pelkmans, University of Zurich, Switzerland

15:00 - 15:35

„High-resolution chromatin dynamics during stress response“

Nir Friedman, Hebrew University of Jerusalem, Israel

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Scientific Program // Sep 2 cont.

September 2 cont.

- 15:35 - 15:50 **„Dynamics and function of the p53 signaling pathway in cancerous and non-cancerous cells“**
Dhana Friedrich, Berlin Institute for Medical Systems Biology / Max Delbrück Center for Molecular Medicine, Berlin, Germany
- 15:50 - 16:20 *Coffee break*
- 16:20 - 17:05 **Special Talk: „Biological computing meets synthetic biology: new ways to control cells“**
Yaakov Benenson, ETH Zurich, D-BSSE Basel, Switzerland
- 17:05 - 17:40 **„Regulatory RNAs“**
Nikolaus Rajewsky, BIMSB / MDC Berlin, Germany
- 17:40 - 17:50 Closing remarks
- 18:00 *Barbecue (for all participants), MDC.C Foyer and outside*

SINGENE SYMPOSIUM 2014

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