



Spatial 2009 - Overcoming Distance In Signaling Networks

*EMBO Conference Series on Systems Dynamics of Intracellular Communication
A FEBS Workshop*

*A Research Workshop of the Israel Science Foundation and the Misrahi Foundation
Including a Lecture Sponsored by the Company of Biologists*

Maale Hachamisha, Jerusalem Hills, Israel, March 15-19, 2009

Sunday, March 15, 2009

16:00 Registration desk opens

19:00 – Dinner

20:00 – 20:10: Brief Welcoming Remarks

20:10 – 21:30: *Setting the Stage*

Chair – Mike Fainzilber

- Joerg Stelling – Mechanistic Model Development Under Uncertainty
- Philippe Bastiaens – Imaging Spatial Propagation Modes of Cell Signals

21:30 – 24:00: Cheese and Wine Reception

Monday, March 16, 2009

8:30 – 10:30: Neurites – from Growth to Degeneration

Chair – Carlos Ibanez

- David Holcman – A Quantitative Analysis of Neurite Outgrowth
- David Ginty – Retrograde Signals Controlling Neuronal Development in the PNS
- Avraham Yaron – The Apoptotic Machinery is Required for Axonal Degeneration

10:30 – Coffee Break

11:00 – 13:00: Spacing and Patterning

Chair – Rony Seger

- Boris Kholodenko – Spatio-Temporal Coding of Signal Specificity
- Andre Levchenko – Regulation of Spatial Signaling by Molecular Scaffolds
- Stanislav Shvartsman – MAP Kinase Substrate Competition Integrates Patterning Signals in the Drosophila Embryo

13:00 – Lunch

15:00 – 17:00: Short Talks I

Chair – Michael Elbaum

- Nir Gov – Active Protein Transport and Stereocilia Regulation
- Hannah Schmidt-Glenewinkel – Quantitative Analysis of EGFR Endocytic Sorting
- Mira Barda-Saad – Novel Insights into the Regulation of T Cell Signaling Complexes
- Natalia Volinsky – Signaling Movement: p21-Activated Kinase Regulates Cytoskeletal Events Required for Migration

10 minutes breather

- Andrea Cangiani – Spatial Modeling and Simulation of Ran-Mediated Nuclear Transport
- Patrizia Lavia – RanGTP and Importin β in Mitotic Spindle Organization and Dynamics
- Yaron Shav-Tal – The Dynamics of Single mRNP Nucleocytoplasmic

17:00 – 19:00: Poster Session I

19:00 – Dinner

20:00 – 21:30: Membranes and Microscopes

Chair – Giampietro Schiavo

- John Hancock – Plasma Membrane Nanostructure and Two-Dimensional Control of Signal Transduction
- Ernst Stelzer – Light Sheet Based Fluorescence Microscopes (LSFM, SPIM, DSLM) Reduce Phototoxic Effects by Several Orders of Magnitude

Tuesday, March 17, 2009

8:30 – 10:30: *Polarity and Chemotaxis*

Chair – John Tyson

- Leah Edelstein-Keshet – Signaling by Rho GTPases and Phosphoinositides in Eukaryotic Cell Polarity
- Anne Ridley – Roles of Rho GTPase Signalling in Leukocyte Polarity and Migration
- Rosalind Segal – BDNF and Chemotaxis of Neural Precursors

10:30 – Coffee Break

11:00 – 13:00: *RNA*

Chair – Joel Yisraeli

- Henry Krause – Subcellular Localization of the Transcriptome
- Jeff Gerst – mRNA Targeting in Yeast
- Jeff Twiss – RNA Localization and Localized Protein Synthesis in Neurons

13:00 – Lunch

15:00 – 17:00: Short Talks II

Chair – Jeff Twiss

- Zoltan Neufeld – Positional Information Generated by Spatially Distributed Signaling Cascades
- Danny Ben-Zvi – Scaling of the BMP Activation Gradient in *Xenopus* Embryos
- Na'aman Kam – Do Molecular Motors Drive Distance Measurements in Injured Neurons?

10 minutes breather

- Francisca Bronfman – BDNF-Induced Dendritic Arborization is Regulated by Rab11
- Tomomi Tani – Single Molecule Analysis of NGF and Receptor Trafficking on Growth Cones
- Elsa Fabbretti – Csk is a Novel Regulator of P2X3 Receptors on Trigeminal Neurons
- Barry Kaplan – MicroRNAs Modulate Axonal mRNA Levels and Local Mitochondrial Activity

17:00 – 19:00: *Poster Session II*

19:00 – Dinner

20:00 – 21:30: *Oscillations and Noise*

Chair – Boris Kholodenko

- John Tyson – Design Principles of Biochemical Oscillators
- Jose Vilar – Intracellular Noise and Long Range Interactions on DNA

Wednesday, March 18, 2009

8:30 – 10:30: *Moving Along Axons*

Chair – Francisca Bronfman

- Rejji Kuruvilla – Axonal Targeting of Trk Receptors via Transcytosis Modulates Sensitivity to Neurotrophin Responses
- Sara Salinas – Coxsackievirus and Adenovirus Receptor is Responsible for Axonal Transport of and Adenovirus in pH Neutral Vesicles
- Izhak Michaelovski – Proteomics of Retrograde Injury Signaling in Peripheral Nerve Axons

10:30 – Break

11:00 – 13:00: *Directions and Motors*

Chair – Leah Edelstein-Keshet

- Richard Firtel – Regulation of Directional Sensing through the Spatiotemporal Control of Ras
- Viki Allan – Co-Operation Between Microtubule Motors
- Elizabeth Fisher – A Genetic Approach to Understanding the Dynein Complex

13:00 – Lunch

15:00 – 17:00: *Shape and Size*

Chair – Joerg Stelling

- Karsten Kruse – Self-Organization Of Min Proteins In Vitro And In Vivo
- Petra Levin – A Metabolic Sensor Governing Cell Size
- Janni Petersen – TOR Signalling and Size Control in Fission Yeast

17:00 – 17:30: Business Meeting

18:00 Buses leave for gala dinner and western wall tunnels tour

Thursday, March 19, 2009

Breakfast and departures