

Monday, October 20, 2014

- 12:00 Vineyard excursion (reservation necessary)
- 16:00 Arrival and registration
- 18:00 **Welcome reception and opening remarks**
Rez de Jardin
- 18:30 **Introduction to Micronaut exhibition**
Henning Stahlberg, *University of Basel*
- 19:00 **Keynote lecture: Light-based systems biology**
Gene Myers, *Max Planck Institute for Molecular Cell Biology and Genetics (Dresden, Germany)*

Tuesday, October 21, 2014 a.m.

Theory and Biophysical Modeling

Chair: Felix Naef, *EPF Lausanne*

- 09:00 **Gradient scaling and growth control in Epithelia**
Frank Jülicher, *Max Planck Institute for Physics of Complex Systems (Dresden, Germany)*
- 09:50 **Quantifying Nature's appearance: combining high-resolution, coloured 3D reconstruction and mathematical tools to analyse skin patterns in *Pantherophis guttatus***
Antonio Martins, *University of Geneva*
- 10:10 **Automated reconstruction of genome-scale metabolic network models**
Jörg Stelling, *ETH Zurich*
- 10:35 Break
Rez de Jardin
- 11:00 **What is the dimension of molecular recognition?**
Tsvi Tlusty, *Institute for Advanced Study (Princeton, USA)*
- 11:30 **Robust Pom1 gradient formation through intermolecular phosphorylation in fission yeast**
Micha Hersch, *University of Lausanne*
- 11:50 **Computational dissection of phenotypic and functional heterogeneity in cancer**
Dana Pe'er, *Columbia University (USA)*
- 12:35 Lunch and poster session
Rez de Jardin

Tuesday, October 21, 2014 p.m.

Quantitative Cell and Developmental Biology

Chair: Marcos Gonzalez-Gaitan, *University of Geneva*

- 14:15 **A Doppler effect in embryonic patterning**
Andrew Oates, *National Institute for Medical Research (London, UK)*
- 15:05 **The in silico limb: a dynamic spatial model for the morpho-regulatory signaling during vertebrate organogenesis**
Erkan Unal, *University of Basel (CH)*
- 15:25 **Compression of ESCRT spiral springs induces lipid membrane buckling**
Aurélien Roux, *University of Geneva (CH)*
- 15:50 Break
Rez de Jardin
- 16:30 **Genetic and neuronal networks mediating active forgetting**
Simon Sprecher, *University of Fribourg (CH)*
- 17:00 **Automated quantitative histology – a machine learning approach to quantify large-scale growth processes**
Christian Hartke, *University of Lausanne (CH)*
- 17:20 **Cortical contractility triggers a motile switch to fast amoeboid migration in 3D environments**
Carl-Philipp Heisenberg, *IST (Austria)*
- 18:05 Drinks and poster session
Rez de Jardin

Wednesday, October 22, 2014 a.m.

Functional Genomics and Gene Regulation

Chair: Bart Deplancke, *EPF Lausanne*

- 09:00 **How functional genomics elucidates global transcription mechanisms**
Patrick Cramer, *Max Planck Institute for Biophysical Chemistry (Göttingen, Germany)*
- 09:50 **Massive parallel genome engineering identifies transcription factor binding as a principal mechanism controlling DNA methylation states of CpG islands**
Arnaud Krebs, *Friedrich Miescher Institute (CH)*
- 10:10 **Expression noise facilitates the evolution of gene regulation**
Erik van Nimwegen, *University of Basel (CH)*
- 10:35 Break
Rez de Jardin
- 11:00 **Recasting the net for miRNA targets and functions**
Mihaela Zavolan, *University of Basel (CH)*
- 11:30 **Systematic characterization of the KRAB zinc finger proteins family using high-resolution ChIP-Seq**
Michael Imbeault, *EPF Lausanne (CH)*
and
MITOMI-seq: a novel tool enabling the parallel characterization of DNA binding specificities of TF monomers and heterodimers
Alina Isakova, *EPF Lausanne (CH)*
- 12:00 **Synchronization of circadian and cell cycle oscillators in single mammalian cells**
Félix Naef, *EPF Lausanne (CH)*
- 12:35 Lunch and poster session
Rez de Jardin

Wednesday, October 22, 2014 p.m.

Single-Cell Biology

Chair: Lucas Pelkmans, *University of Zurich*

- 14:15 **Force scaling in stress fibers**
Manuel Théry, *iRTSV (Grenoble, France)*
- 15:05 **The Legionella pneumophila Lqs quorum sensing system – Phosphorylation signaling and intra-amoeba single cell gene regulation**
Hubert Hilbi, *University of Zurich (CH)*
- 15:20 Break
Rez de Jardin
- 16:00 **A structural systems-biology approach to cell biology by electron microscopy: Multiscale structural analysis from bulk tissue to the full proteome of a single cell**
Henning Stahlberg, *University of Basel (CH)*
- 16:30 **Noise facilitates NF-kappaB entrainment and transcriptional control under complex signalling environments**
Savas Tay, *ETH Zurich (CH)*
- 16:50 **It's Too Late to Apoptize: A time-dependent threshold for p53-mediated apoptosis**
Galit Lahav, *Harvard Medical School (Cambridge, USA)*
- 19:00 Conference dinner (reservation necessary)
Boat from Ouchy – make your own way there!

Thursday, October 23, 2014

Systems Genetics and Medicine

Chair: Olivier Michielin, *University of Lausanne and Swiss Institute of Bioinformatics*

- 09:00 **Identifying therapeutic intervention points through systems genetics**
Lars Steinmetz, *EMBL (Heidelberg, Germany)*
- 09:50 **Translating cancer genomes into effective personalized immunotherapies**
Etienne Caron, *ETH Zurich (CH)*
- 10:10 **Act Locally, Think Globally: Pathogen behavior in complex host environments**
Dirk Bumann, *University of Basel (CH)*
- 10:35 Break
Rez de Jardin
- 11:00 **Variation and genetic control of chromatin architecture in humans**
Bart Deplancke, *EPF Lausanne (CH)*
- 11:30 **Influence of L-arginine on metabolic networks and the lifespan of activated T cells**
Roger Geiger, *Università della Svizzera italiana (CH)*
- 11:50 Poster awards
- 12:30 **Keynote lecture: Architecture and dynamics of the Notch signaling pathway**
Michael Elowitz, *CALTECH (USA)*
- 13:30 Lunch and departure
Rez de Jardin