FRONTIERS MEETING
3 – 6 March 2010

Château de l’Ile
4 quai Heydt – 67540 STRASBOURG - OSTWALD
Rapporteurs:
Paul Lasko (McGill University, Montreal, Canada)
Rae Silver (Columbia University, New York, USA)
K. VijayRaghavan (National Centre for Biological Sciences, Bangalore, India)

Discussants:
Akito Arima (President of HFSPO, President of Japan Science Foundation, Tokyo, Japan)
Jesper Haeggström (Karolinska Institute, Stockholm, Sweden)
Young-Joon Kim (Yonsei Genome Institute, Seoul, Republic of Korea)
Glauco Tocchini-Valentini (Institute of Cell Biology, CNR, Monterotondo, Italy)
Torsten Wiesel (Former Secretary General of HFSPO and President Emeritus of the Rockefeller University, New York, USA)
Wednesday March 3rd
Evening

18.00 Aperitif

18.45 Welcome
Akito Arima, President of HFPO, President of Japan Science Foundation

19.00 Introductory lecture
*Computer simulation in the life sciences: where do we go?*
Wilfred van Gunsteren (ETH Hönggerberg, Zurich, Switzerland)

20.00 Dinner

Thursday March 4th
Morning 8.45 -13.00

8.45 Introduction
Ernst-Ludwig Winnacker, Secretary General HFPO

**Genes and gene networks**

9.00 Chair and introductory talk
Tom Henzinger (Institute of Science and Technology, Austria)
*Computer Science versus Computational Science*

9.40 Jordi Garcia Ojalvo (Universitat Politecnica de Catalunya, Barcelona, Spain)
*From gene circuit dynamics to the molecular mechanisms of cellular function*

10.20 Coffee

10.40 Roger Brent (Molecular Biosciences Institute, Berkeley and Fred Hutchinson Cancer Research Center, Seattle, USA)
*New types of biological function via single cell physiology*

11.20 Sven Panke (Bioverfahrenstechnik, Basel, Switzerland)
*Synthetic Biology: Engineering complex systems?*
12.00  Discussion

13.00  Lunch at hotel

Afternoon 14.30-18.30

Proteins and protein complexes
14.30  Chair and introductory talk
Kai Simons (Max-Planck Institute of Molecular Biology and Genetics, Dresden, Germany)
Protein-lipid interactions and cell membrane organisation

15.10  Patrick Cramer (Gene Centre, Ludwig-Maximilians-University, Munich, Germany)
Structural biology of multicomponent complexes: state of the art and new frontiers

15.50  Coffee

16.10  Andreas Ladurner (EMBL, Heidelberg, Germany)
Charting the future epigenetic landscape - from small-molecules-in-action to gene-environment interactions

16.50  Janet Thornton (EMBL outstation - Hinxton, Cambridge, UK)
Structural Data and Computational Predictions for proteins and their complexes

17.30  Discussion

Evening

19.30  Dinner

20.30  Evening lecture
Jonathan Howard (University of Cologne, Germany)
Darwin and Mendel: two paradigms for biology
Friday March 5th
Morning 8.45-13.00

**Cells**
8.45  Chair and introductory talk  
Suzanne Cory (Walter and Eliza Hall Institute, Parkville, Australia)  
*Targeted cancer therapy: Improving outcomes by inducing apoptosis more effectively*

9.25  Akihiro Kusumi (Institute for Frontier Medical Sciences, Graduate School of Medicine, University of Kyoto, Japan)  
*Single-molecule tracking approaches to membrane domains*

10.00 Coffee

10.15 Stefan Hell (Max-Planck Institute for Biophysical Chemistry, Göttingen, Germany)  
*Far-Field Optical Nanoscopy*

10.50 John Gurdon (University of Cambridge, UK)  
*Reversal of the differentiated state: concentration and time*

11.25 Jen Sheen (Massachusetts General Hospital, Boston, USA)  
*Connecting Plant Cell Signaling Networks*

12.00 Discussion

13.00 Lunch

Afternoon 14.30-18.30

**Interactions of higher complexity - 1**
14.30  Chair and introductory remarks  
Gary Ruvkun (Massachusetts General Hospital, Boston, USA)  
*Based on the last 50 years of molecular biology discovery, HFSP should bet on the continued centrality of gene inactivation and phenotyping (ie, genetics).*
15.10 Ian Baldwin (Max-Planck Institute for Chemical Ecology, Jena, Germany)
Ecology's future mission: salvaging books from the burning library

15.50 Coffee

16.10 Anja Geitmann (University of Montreal, Canada)
Mechanics of cellular morphogenesis – towards a holistic view of development?

16.50 Detlef Weigel (Max-Planck Institute for Developmental Biology, Tübingen, Germany)
Complex Interactions in Natural Environments

17.30 Discussion

Evening

18.45 Depart from Chateau de l’Ile by bus

19.30 Recital and Dinner at Salle Mozart, 1 Rue du Miroir
Tel: 03 88 75 90 82

Saturday March 6th
Morning 9.00-13.00

Interactions of higher complexity – 2

9.00 Chair and introductory remarks
Carla Shatz (Stanford University, USA)
How can Nature be unraveled from Nurture in Neuroscience?

9.40 Henry Markram (Ecole Polytechnique Fédérale de Lausanne, Switzerland)
The Blue Brain Project: Understanding through Building

10.20 Coffee

10.40 Henrick Ehrsson (Karolinska Institute, Stockholm, Sweden)
Cognitive neuroscience of body self-perception
11.20 Atsushi Iriki (Riken Brain Science Institute, Wako-shi, Japan)
   *Neuroscience of human intellectual evolution*

12.00 Discussion

13.00 Lunch at hotel

**Afternoon 14.30-18.00**

14.30 Wind-up session
   *Where are the frontiers?*

16.00 Strategy and rapporteurs meeting

19.30 Dinner at hotel
Participants

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